JVC

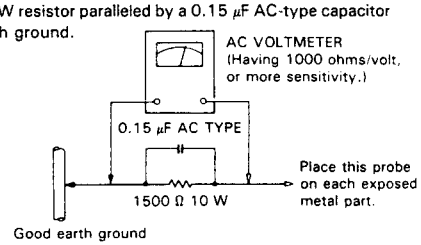
XD-Z505

MODEL

OWNER'S MANUAL

1 Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer or responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by (⚠) on the schematic diagram and Parts List in Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List in Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard.
   When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage current check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.).
     This corresponds to 0.5 mA AC (r.m.s.).

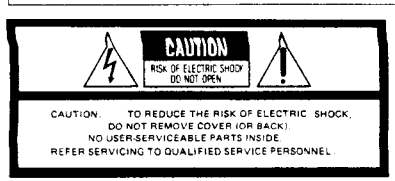

AC VOLTMETER
(Having 1000 ohms/volt, or more sensitivity.)
0.15 μF AC TYPE
1500 Ω 10 W
Place this probe on each exposed metal part.
Good earth ground

Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are mainteined.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

WARNING (In the United Kingdom)

Pre-recorded tapes, records or discs should not be re-recorded without the consent of the owners of copyright in the sound recording and in any copyright musical or literary work embodied in that recording as this constitutes an infringement of copyright.

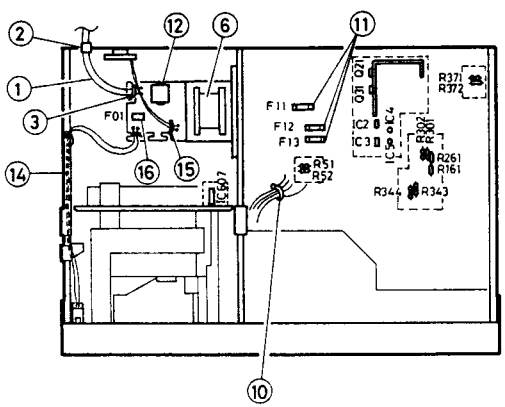

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
CAUTION. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

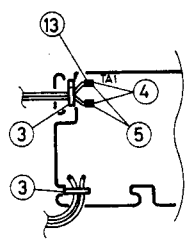
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

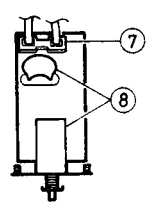
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

■ Important Management Points for Safety (Items Demanding Special Safety Precautions)

1. B: Confirm the power cord indications "BASEC" and "BS6500", and make sure that the core wire is free from any defect (scratch, etc.).
   E/G: Confirm the cord indication "◁VDE▷" and plug indication "Ⓢ", and make sure that the cord is free from any defect.
2. Fix the power cord firmly with a strain relief device (after strain relief).
   In this case, confirm the indication mark "4N-4", and fix the cord using the specified tool "HEYCO".
3. To prevent disconnection and erroneous touch, clamp the power cord and power switch wire firmly to the printed circuit board with bind.
4. To prevent coming-off, the power cords should be fixed to the terminal by soldering after twisting.
5. The power cords should be soldered after bundling together, and the space distance be 3.2 mm or more.
6. After confirming that the parts No. of power transformers B, E and G are respectively VTP66C9-012B, VTP66C9-012B and VTP66M9-011B, these transformers should be mounted firmly without any looseness.
7. Make sure that the connector has been inserted firmly and fully to the power switch printed circuit board.
8. Confirm the power switch mark "M7", and make sure that the spark killer condenser mark is "IE65" or "Ⓢ". Moreover, the terminal brazing should be free from any protrusion.
9. By no means should the heat parts (Q21 and Q31 including heat sinks IC2, IC3, IC4, IC5, IC607, LSI/Servo P.W.B., as well as R301, R302, R371, R372, R51, R52, R343, R344, R161 and R261) come into contact with any other parts.
10. The main P.W.B. connector wire should be clamped to separate the wire from the heat parts (R51 and R52).
11. Confirm that the secondary fuse F11 is indicated by "Ⓢ" and "T1.25A", while the respective fuses F12 and F13 are marked by "Ⓢ" and "T1A". It should also be confirmed that the B model is marked by "Ⓥ". Moreover, make sure that the fuse labels F11 [T1.25A] and F12, F13 [T1A] are sticked on the printed circuit board.
12. Confirm the line filter "ENZ5002".
13. The core wire (BLUE) should be sticked on the T1A mark side.
14. Make sure that the power switch relay wire is indentified by the double coating mark "◇◇◇" and a tube is inserted to prevent its contact with sharp edges.
15. Confirm that the primary select switch is identified by a mark [203].
    B/E: To be marked
    G : Not marked
16. Confirm that the primary fuse F01 is indicated by "Ⓢ" T500 mA/250 V, and the fuse F01 on the printed circuit board by "T500 mA".
    E/B: To be marked
    G : Not marked







■ Specifications

Basic format : Conforming to R-DAT format proposed by the DAT Conference, SCMS compatible DAT deck

Operation modes used :

	Recording/playback mode				Playback only mode
	48k	44k	32k	32k-LP	44k-WT
Tape speed (mm/sec)	8.15	8.15	8.15	4.075	12.225
Recording/playback time (R-120)*	120 min.	120 min.	120 min.	240 min.	80 min.
Sampling frequency	48 kHz	44.1 kHz	32 kHz	32 kHz	44.1 kHz
Number of bits quantization	16-bit linear	16-bit linear	16-bit linear	12-bit non-linear	16-bit linear

Number of channels : 2 Channels, stereo
Frequency response : 2 Hz — 22,000 Hz ±0.5 dB (48k mode)
2 Hz — 20,000 Hz ±0.5 dB (44k mode)
2 Hz — 14,500 Hz ±0.5 dB (32k/32k-LP mode)
Signal-to-noise ratio : 92 dB (48k mode recording/playback)
Dynamic range : 94 dB (48k mode recording/playback)
Total harmonic distortion : 0.003% (1 kHz, 48k mode recording/playback)
0.08% (1 kHz, 32k-LP mode recording/playback)
Wow & flutter : Less than measurable limit (±0.001% W.PEAK)
Access time : 5 minutes access time ; 8.0 seconds
60 minutes access time ; 31.3 seconds
Fast forward/rewind time : Approx. 52 seconds (R-120 cassette)
Error correction system : Doubly-encoded Read-Solomon Code
Input/output terminals (Analog) : LINE IN (RCA jack) x 2
Min input level; 63mV (500mV at full scale)
Input impedance ; 47 kohms
LINE OUT (RCA jack) x 2
Output level; 0.25V (2V at full scale)
Output impedance; 200 ohms
PHONES (6.3 mm dia. standard phone jack) x 1
Output level; 0 — 0.1mW/8 ohms (6.3mW/8 ohms at full scale)
Matching impedance; 8 ohms — 1 kohms
Input/output terminals (Digital) : COAXIAL IN (RCA jack) x 1
0.5Vp-p Input impedance; 75 ohms
OPTICAL IN x 1 ; -27 dBm — -14 dBm
COAXIAL OUT (RCA jack) x 1
0.5Vp-p Output impedance; 75 ohms
OPTICAL OUT x 1 ; -21 dBm — -15 dBm
Other terminals : COMPU LINK-1/SYNCHRO (3.5 mm dia. min jack) x 2
Power requirements : AC 240/220/120 V, 50/60 Hz (B/E Version)
AC 120 V 60 Hz (C/J Version)
Power consumption : 24 watts
Dimensions (WxHxD) : 435 x 135 x 336 mm (17-3/16" x 5-3/8" x 13-1/4") (including feet and knobs)
Weight : Approx. 7.0 kg (15.5 lbs)
Accessories : RCA-plug connection cord x 2
Remote cable x 1
Remote control unit (RM-RD505U) x 1
Battery (size "R03" for remote control operation) x 2

• Only digital recording is possible in the 44k and 32k modes.

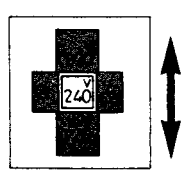
* R-120 is a JVC DAT cassette with a recording time of 120 minutes in the Standard mode.

Design and specifications subject to change without notice.

Area suffix
B ..... U.K.
E ..... Continental Europe

SELECTING THE AC SUPPLY VOLTAGE

When this deck is used in an area where the supply voltage is different from the preset voltage, reset the voltage selector to the correct position.
Slide the voltage selector with a screwdriver so that the desired voltage marking is in the window.

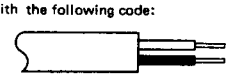


Caution:
Disconnect supply cord before changing the voltage.

IMPORTANT (In the United Kingdom)
Mains Supply (AC 240 V~, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:



Blue to N (Neutral) or Black
Brown to L (Live) or Red

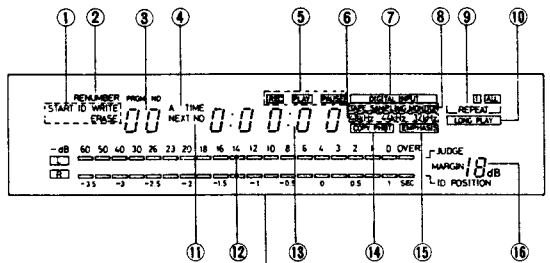
If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

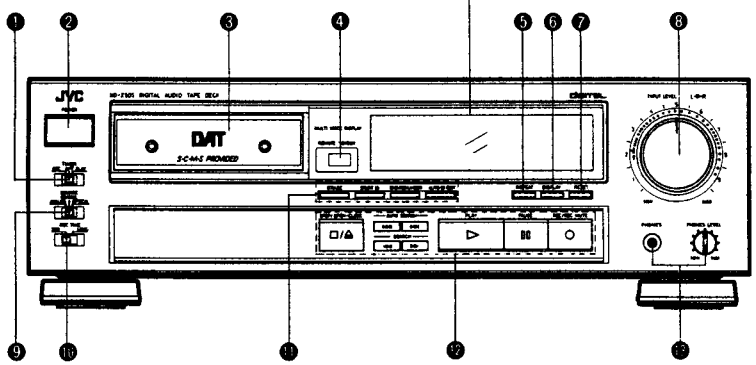
■ Instruction Book (Extruction)

Name of Parts and Their Functions

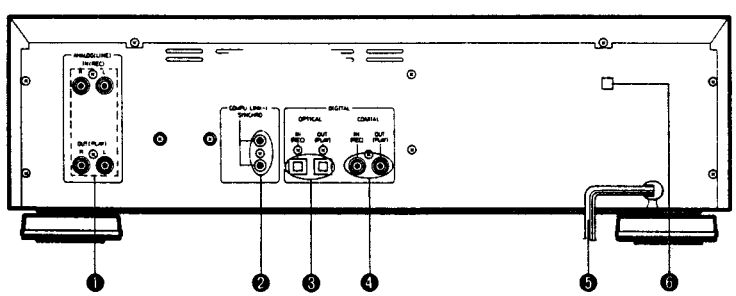
• Display window
• Display
• Fenêtre d'affichage



• Front panel
• Panel frontal
• Panneau avant



• Rear panel
• Panel posterior
• Panneau arrière



• Front panel

❶ **TIMER switch**
Used when timer recording or playback is to be performed using an audio timer. Normally set to the OFF position.
❷ **POWER switch**
❸ **Cassette tray**
❹ **REMOTE SENSOR**
Receives infrared signals transmitted from the remote control unit.
❺ **REPEAT button**
Used to repeat all the tunes on the tape.
❻ **DISPLAY button**
Used to select the mode of the display.
When the power is first switched on, "A TIME" (absolute time) is displayed. Every time this button is pressed, the display alternates between the counter mode and "A TIME".
❼ **Tape counter reset button (RESET)**
❽ **INPUT LEVEL control (Analog)**
Adjust the recording level with this control.
The inner knob is for the left channel and the outer knob, the right channel.
❾ **SOURCE switch**
Set to according to the type of input signal. (Analog/coaxial/optical)
❿ **REC TIME switch**
Select the recording time in different recording modes.

Recording mode / Switch position	Analog recording	Digital recording	
Standard (STD)	48k mode	32k mode	48k/44k mode
LONG	32k-LP mode	32k-LP mode	

• The REC TIME switch is not used when recording a digital signal in the 48k and 44k modes. The source signal is recorded as it is.
⓫ **Sub code buttons**
• Start ID erase (ERASE)
• START ID
• END/RENUMBER
Press during recording to record the End code.
If pressed in the stop mode, it is possible to set new program numbers.
• AUTO ID EDIT
⓬ **Tape operations buttons**
■/⏏ STOP/OPEN-CLOSE:
Press to stop the tape.
Press to open and close the cassette tray.
⏮/⏭ AUTO SEARCH:
Used to designate the number of tunes.
◀◀/▶▶ SEARCH:
When pressed in the stop mode, the fast-forward or rewind operation starts, and speeded-up sound can be heard at a lower level (cue, review function).
▶ PLAY:
Press to start recording and playback.
❚❚ PAUSE:
Press to stop the tape temporarily.
To release this mode, press the ▶ PLAY button.
○ REC/REC MUTE:
When recording, press the ▶ PLAY button while pressing this button. To enter the "rec-pause" mode, press together with the ❚❚ PAUSE button. When this is pressed during recording, the rec mute operation is engaged.
⓭ **PHONES jack and PHONES LEVEL control**

• Display window

① Start ID detect/memory/erase indicator
② RENUMBER indicator
③ Program number indicator (PRGM NO)
④ Absolute time indicator (A TIME)
⑤ Mode indicator
⑥ Sampling frequency indicator
⑦ Digital input indicator (DIGITAL INPUT)
⑧ Tape/sampling monitor indicator (TAPE SAMPLING MONITOR)
⑨ REPEAT indicator
⑩ 32k-LP mode indicator
⑪ Next number indicator (NEXT NO)
⑫ Level meter indicators
⑬ Digital counter
⑭ Copy prohibit indicator (COPY PHBT)
⑮ Emphasis indicator (EMPHASIS)
⑯ Digital peak display

• When the following operations are performed, these indications are displayed.

TOP: When the deck is set to the rec-pause mode or rec mode at the beginning of tape.
-00:01: After TOP has been displayed and a tape is recorded and then rewound, this is displayed.
EE: When an End code is detected or recorded, the deck stops automatically and this is displayed.
no TAPE: When the cassette tray is closed without a cassette tape loaded.

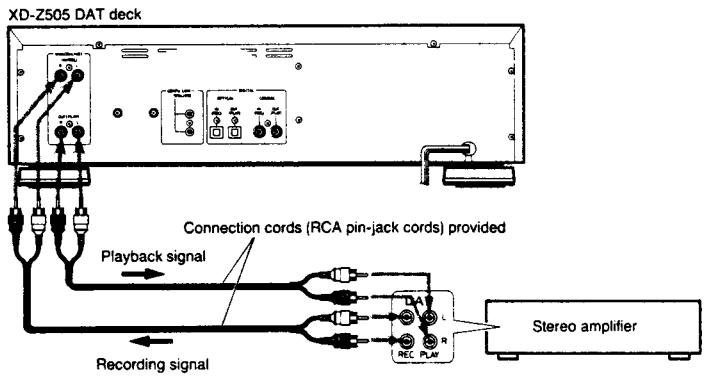
• Rear panel

❶ **ANALOG (LINE) IN/OUT terminals**
(Refer to page 7.)
❷ **COMPU LINK-1/SYNCHRO terminals**
When connected to a CD player, cassette deck or amplifier with COMPU LINK-1/SYNCHRO terminals using the remote cable, synchro recording and automatic source selection are possible.
(Refer to page 7.)
❸ **DIGITAL OPTICAL IN/OUT terminals**
Connect to an amplifier with optical digital in/out connectors using exclusive optical fiber cables.
❹ **DIGITAL COAXIAL IN/OUT terminals**
Connect to an amplifier with coaxial digital in/out connectors using coaxial connecting cables (75 ohms).
❺ **AC cord**
❻ **Voltage selector**

CONNECTIONS

- Do not switch the power on until all connections are completed.
- Insert the plugs firmly; poor contact can cause noise.
- When RCA pin-plug cords are employed, always connect the white plug to the left channel terminal. This helps avoid reversed connections.

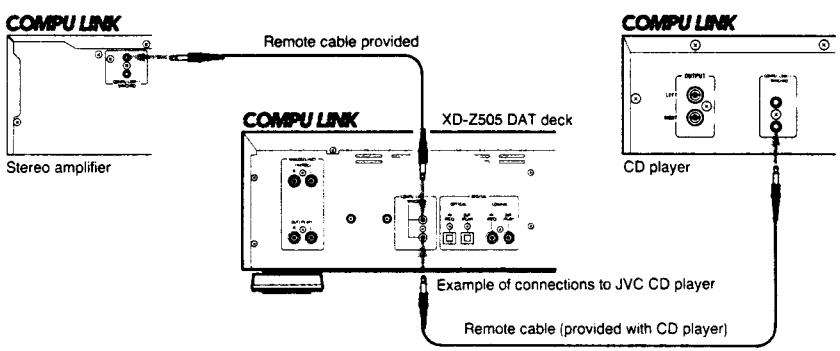
1. Connection to stereo components (Analog signal lines)



- When the stereo amplifier is not provided with DAT terminals, refer to its instruction manual.

2. Remote cable connection for COMPU LINK

- By connecting a remote cable, COMPU LINK functions (auto source select and synchro recording) can be performed.
- When making synchro recordings with a CD player, connect the remote cable to the COMPU LINK-1/SYNCHRO jacks.

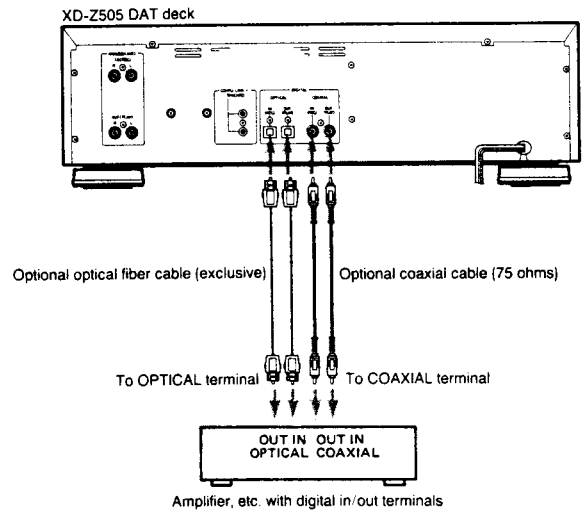


- Connect the COMPU LINK-1 SYNCHRO jack of the deck to the COMPU LINK-1/SYNCHRO jack of the amplifier using the remote cable provided to perform auto source selection.

Note:
When installing this unit, leave an appropriate distance between it and your stereo amplifier, tuner and television set. If they are too close, noise (induced hum) may occur.
We recommend that you use outdoor FM and TV antennas.

3. Connections to stereo components (Digital signal lines)

- To transmit digital signals between the DAT deck and an amplifier with digital in/out terminals exclusively for DAT, use the DIGITAL IN/OUT terminals on the rear panel of the deck. For the transmission of digital signals, two types of cables can be used: COAXIAL (for electrical signals) and OPTICAL (for optical signals). Either of these can be used for digital signal transmission.
- With digital signals, only one cable is used for the transmission of both the left and right channel signals.



- **OPTICAL connection**
  Remove the caps from the OPTICAL terminals and connect the DIGITAL OPTICAL IN/OUT terminals to the amplifier, etc. using exclusive optical fiber cables.

Note:
Clean the tip of the plug of the optical cable before connecting it.

- **Synchro recording with CD player**

When making a synchro recording with a CD player, as well as connecting the optical fiber or coaxial cable, perform the following connections.

1. Connect the COMPU LINK-1/SYNCHRO terminals with the remote cable. (See page 7.)
2. Connect the OUTPUT terminal (analog) of the CD player and the ANALOG IN terminal with a RCA pin cord.

- **Red light in the OPTICAL OUT terminal:**
  When the power is turned on, a red light appears inside the terminal. This is used to transmit the digital signal. Although it is not dangerous even when it strikes the eyes directly, do not remove the cap covering the terminal when not in use.

Notes:
1. **When a digital program is encoded with a "copy prohibit" code (except in case of SCMS), it cannot be copied digitally. To copy such a program, perform analog connection. (Refer to page 12.)**
2. Never connect the digital coaxial cable to the analog input terminals of an amplifier, etc. as this could seriously damage the amplifier.
3. When the OPTICAL terminals are used for digital connection, check that the optional exclusive optical fiber cables can be inserted into the terminals of the amplifier.
4. Do not bend optical fiber cable sharply. For details, refer to its instructions.
5. When both the ANALOG and COAXIAL terminals of the DAT deck are used for the connection of certain components (amplifiers, tuners, cassette decks, etc.), noise (induced hum) may occur. In this case, disconnect any unused IN/OUT terminals.

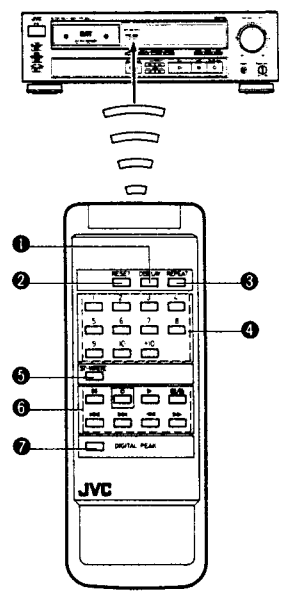
FEATURES

1. **Five 2-channel modes**
   - 48 kHz mode: Sampling frequency of 48 kHz, 16-bit linear quantization
   - 44 kHz mode: Sampling frequency of 44.1 kHz, 16-bit linear quantization
   - 32 kHz mode: Sampling frequency of 32 kHz, 16-bit linear quantization
   - 32 kHz LP (Long Play) mode: Sampling frequency of 32 kHz, 12-bit non-linear quantization
   - 44 kHz WT (Wide Track, playback only) mode: Sampling frequency of 44.1 kHz, 16-bit linear quantization
2. **SCMS (Serial Copy Management System)**
   - Only one digital recording can be made of CD software
3. **High-precision fine-tracking digital servo mechanism**
   - JVC's high-precision mechanism makes possible the LP (Long Play) mode
4. **Fourth-order delta sigma type 1-bit ADC (Analog to Digital Converter)**
5. **1-bit DAC (PEM DD converter)**
   - Newly developed PEM (Pulse Edge Modulation) system DAC
   - Unsaturated type fourth-order noise shaper
6. **AUTO ID EDIT function**
   - The optimum START ID position is automatically shown in the display
7. **Sampling monitor facility**
8. **20-dot digital meter (with peak hold function)**
   - The digital peak display shows the margin
9. **Tray type cassette loading**
10. **Direct access playback with 10-key remote control**
11. **Separate sub code keys**
    (with Renumber function)
12. **10-key wireless remote control**
13. **Digital input/output terminals (Coaxial/Optical)**
    - Meeting digital audio interface standards
14. **SOURCE selector (Digital/Analog)**

REMOTE CONTROL OPERATIONS

Correct use of the remote control

- Press the button(s) while pointing the top of the remote control unit at the remote sensor on the front panel of the main unit.
- The operable range is about 7 meters (approx. 23 ft) away from the main unit. If operated at an angle, the range will be shorter.
- Do not allow direct sunlight or strong light from a fluorescent light, etc. to strike the remote sensor, as far as possible.



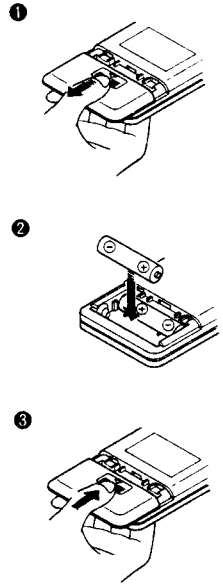
Name of parts and their functions

1. **DISPLAY button**
2. **RESET button**
3. **REPEAT button**
4. **Numeric keys ("1" — "10", "+10")**
   Used to designate the desired tune directly.
5. **Start ID-write button (ST-WRITE)**
   Used to write a start ID.
6. **Tape operations buttons**
7. **DIGITAL PEAK button**
   Used to recall or reset the maximum value stored in the digital peak memory.

* Other control buttons have the same functions as those on the front panel of the main unit.

Battery replacement

1. Open the battery compartment cover.
2. Insert two "R03" batteries.
3. Close the battery compartment cover.



Notes:

1. When the distance from which the remote control unit is effective becomes shorter, the batteries are almost exhausted. Replace the batteries with new ones.
2. Be sure to use two "R03" batteries in the remote control. Incorrect use of batteries may cause corrosion or an explosion.
   - Insert the batteries into the battery compartment with correct positive ⊕ and negative ⊖ polarities.
   - Do not use old and new batteries together.
   - When the unit is not to be used for an extended period of time, remove the batteries to prevent damage due to corrosion.

(No. 4323)

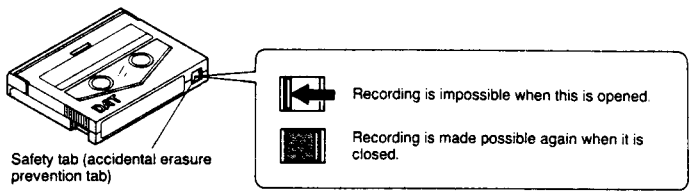
DAT CASSETTES

Concerning DAT cassettes

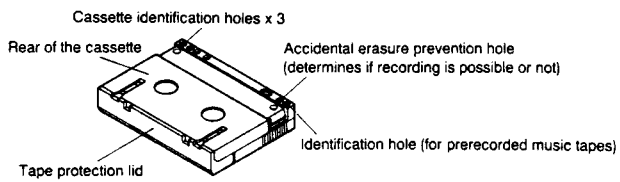
- Use cassette tapes with the DAT logotype shown here.

DAT
Digital Audio Tape

- When a tape on which a recording has previously been made is used for recording, the previously recorded signals will be erased automatically, and the tape will contain only the new recording.


Safety tab (accidental erasure prevention tab)
Recording is impossible when this is opened.
Recording is made possible again when it is closed.

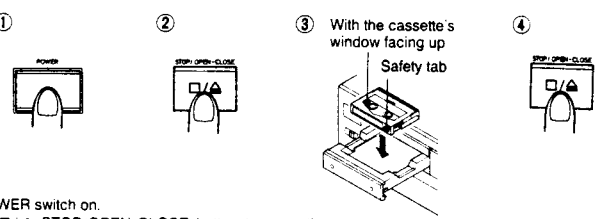
- DAT cassettes have sliding safety tabs to prevent accidental erasure. Be sure to open the tabs of cassettes containing important recordings which you want to protect against accidental erasure.
- DAT cassettes cannot be used upside down.
- DAT cassettes have a lid (cover) to prevent the accumulation of dust or dirt on the surface of the tape. Do not open this forcibly.
- DAT cassette shells are constructed so that the tape cannot be touched by accident.


Cassette identification holes x 3
Rear of the cassette
Accidental erasure prevention hole (determines if recording is possible or not)
Identification hole (for prerecorded music tapes)
Tape protection lid

Cautions on storage of DAT cassettes

- Do not leave cassettes in a place exposed to direct sunlight or near a heater, etc.
- Do not leave cassettes in a place subject to excessive humidity.
- Do not drop cassettes or expose them to excessive vibrations or shocks.
- Do not leave cassettes in a place subject to excessive dust.
- Do not store cassettes where there is a strong magnetic field, such as near a motor, transformer or permanent magnet, etc.
- When not using them, always replace cassettes in their plastic cases.

Loading DAT cassettes



① Set the POWER switch on.
② Press the ■ / ⏏ STOP/OPEN-CLOSE button to open the cassette tray.
③ Insert the cassette with its window facing up.
④ Press the ■ / ⏏ STOP/OPEN-CLOSE button to close the cassette tray.

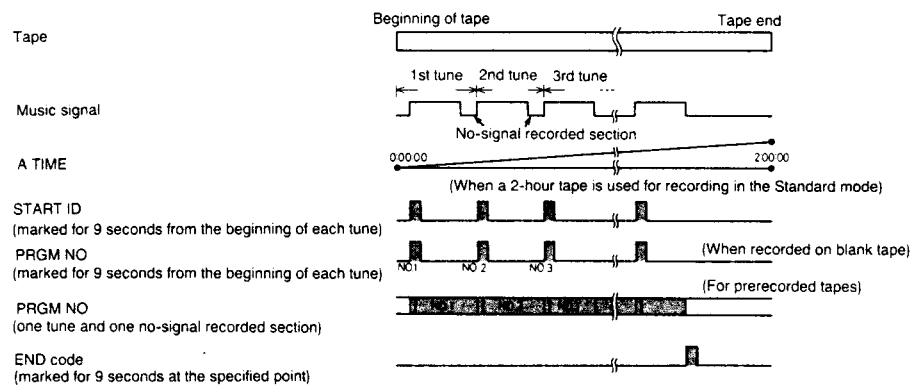
SUB CODES

"Sub codes" are codes recorded on the tape separately from the music signals. They are mainly used to provided various functions which make the DAT system more convenient. These codes are necessary for search operations (direct access playback), etc.

Types of sub codes and details

Name		Details	Functions
Information data	A TIME	Shows the elapsed recording time from the beginning of the tape. (Absolute Time)	The absolute time is marked together with the music signal and allows the elapsed time from the start of tape to be displayed.
	PRGM NO	Shows the tune number, counting from the beginning of the tape. (Program Number)	With this code, direct access playback using the remote control unit is possible.
ID (Identification) Data	START ID	Indicates the beginning of a tune	Using the AUTO SEARCH buttons, the beginning of any tune can be found easily.
	END code	Indicates the point at which the previous recording ended.	When a tape is played back or fast forwarded, the deck stops automatically at the beginning of the End code.

Relationship between the music signal and sub codes

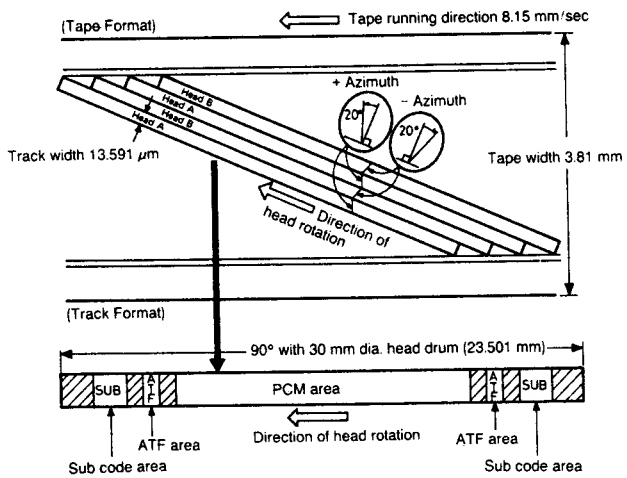


- The sub code recording time shows the time when the tape is recorded in the 48k, 44k or 32k mode. When recorded in the 32k-LP mode, the recording time will be doubled.

Note:
When the deck is set to the 32k-LP mode, the A TIME is marked at half the speed compared with other modes. This is to match the A TIME and the position of the tape with a one-to-one relationship.

(No. 4323)

TECHNICAL INFORMATION ABOUT DAT

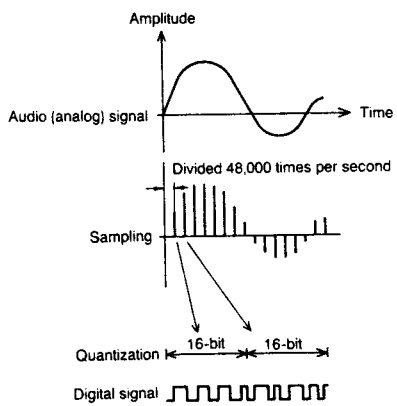


DAT recording system

- In a **DAT** deck, heads mounted in the head drum rotate at high speed to record digitally-encoded signals on the tape at an angle to the tape. This system is called "helical scanning".
- **PCM (music signal) area:**
  Digitally-encoded music signals are recorded in this area.
- **ATF (Automatic Track Finding) area:**
  This area is used for recording ATF signals which control the heads so that they trace the recorded signal for accurate and stable tracking and the correct signals are picked up by the rotating heads.
- **Sub code area:**
  This area is for recording the signals which enable various functions such as high-speed search and editing. With the XD-Z505, A TIME (absolute time), Program No., Start ID and End codes can be recorded.

Digital signal processing

- **Digital recording in the 48 kHz standard mode**
  Signals are converted from analog to digital before being recorded. This is called A/D conversion.



1. The amplitude of the analog audio signal to be recorded is detected 48,000 times per second by "slicing" the signal. This is called "sampling at a frequency of 48 kHz".
2. The length of each slice is rearranged as 16 data bits. This is called "16-bit quantization".
3. Each quantized signal is encoded as a binary number (0s and 1s) for digital recording.

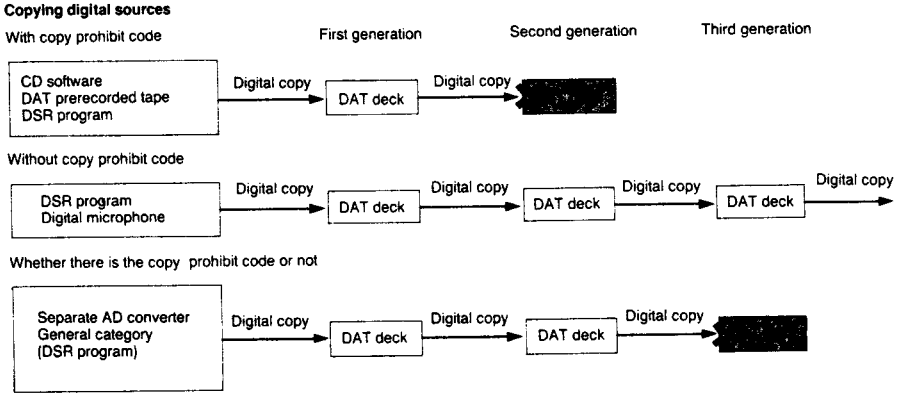
- **Digital playback**
  The quantized digital signals recorded on the DAT tape are reconverted to analog signals through a D/A converter which performs the reverse operations to those performed in A/D conversion.

SCMS (Serial Copy Management System)

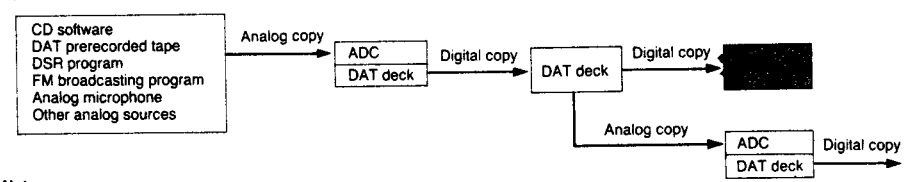
- SCMS controls the DAT's serial copy with the digital signal.

It is possible for a SCMS-compatible DAT deck to record digital sources including CDs, DAT prerecorded tapes, DSR (Digital Satellite Radio) programs onto DAT tape with a direct digital input. For sources such as CDs, DAT tapes and DSR programs covered by SCMS regulations, copy-permitted programs can be recorded on DAT tape whether or not they contain a copy-prohibit code. When the copied (recorded) tape is played back by a DAT deck and the digital output is input to the another DAT deck, digital recording can be performed if there is no copy prohibit code, however, digital recording cannot be performed if there is a copy prohibit code. Namely, one — and only one — copy can be made of a digital source with a copy prohibit code, and second-generation, third-generation and serial copying is not possible. SCMS applies in any DAT mode, regardless the sampling frequency. The following illustrations show the principles of the SCMS system.

- **Copying digital sources**



- **Copying analog sources**
  When an analog signal is input, this signal can be recorded by a DAT deck because this signal does not contain a copy prohibit code. However, since the signal recorded on the tape has passed through the A/D converter (ADC), the tape is treated as a DAT prerecorded tape which contains the copy prohibit code.



Note:
An A/D converter performs sampling and quantization to convert an analog signal into a digital signal. This signal processing is called "A/D conversion" and the circuit which performs it is called an A/D converter.

RECORDING

Before performing recording:
- Make sure the safety tab of the cassette is closed.
- Set the TIMER switch to OFF before switching the POWER on.

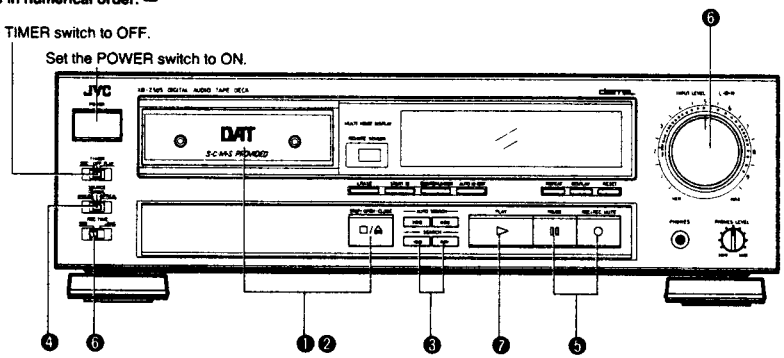
It may be unlawful to record or playback copyrighted material without the consent of the copyright owner.

— Operate in numerical order. —

(only analog recording)

Set the TIMER switch to OFF.

Set the POWER switch to ON.



❶ Press the ■/▲ STOP/OPEN-CLOSE button to open the cassette tray.

❷ Insert a cassette with its window facing up.

❸ Locate the position from which recording should start with the ◄◄/►►SEARCH buttons.
- ◄◄: When recording is to start from the beginning of the tape.
- ►►: When recording is to start from the middle of the tape. (The End code is detected.)

❹ Select the source to be recorded.
ANALOG: When recording analog input signals
OPTICAL or COAXIAL: When recording digital input signals

❺ Set the deck to the rec-pause mode.
- "SAMPLING MONITOR" lights.

❻ Select the recording mode. When recording analog signals, adjust the recording level.

- Recording mode

REC TIME switch	Analog recording	Digital recording	
STD	48k mode	32k mode	48/44k mode
LONG	32k-LP mode	32k-LP mode	

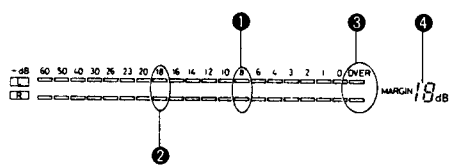
❼ Press the ► PLAY button to start recording.

- **When recording a digital signal**
  The recording level, sampling frequency and emphasis status are recorded as they are. It is not necessary to adjust the recording level.
- **For details about digital recording, see page 16.**
- **When the end of a tape is reached**
  With the auto rewind function, the tape is rewound to its beginning and stops automatically.
- **Tape protection**
  When the cassette tray is closed, sometimes it will pop out again; this is to protect the tape. If this happens, adjust the position of the cassette and close the tray again.

Notes:
1. When starting recording at the beginning of the tape, leave a no-signal recorded section of about 10 seconds.
2. "TOP" is displayed when the deck enters the rec-pause or rec mode after the tape has been rewound.

Recording level adjustment

(only when an analog signal is to be recorded)



- **Peak level meter and digital peak display:**

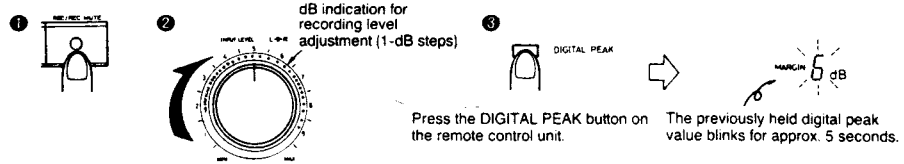
❶ **Peak level meter**
Values higher than −40 dB will be displayed for the left and right channels independently, while peak values are held for approx. 2 seconds.

❷ **Reference level indicator**
Shows the reference input level of the DAT deck at a position −18 dB from the full-scale level.

❸ **OVER level indicator**
Lights when the recording level is too high.

❹ **Digital peak display**
Shows the margin between the maximum input level and the input level of the signal being recorded in 1-dB steps, within a range of −19 dB to 0 dB.

Adjusting the recording level



Press the DIGITAL PEAK button on the remote control unit.

The previously held digital peak value blinks for approx. 5 seconds.

❶ Press the O REC/REC MUTE button. The deck enters the sampling monitor mode.

❷ Adjust the recording level.
Set the recording level by referring to the digital peak display. Adjust the maximum value of the recording level so that the OVER indicator does not light.

❸ Check the digital peak level.

- While the previously held digital peak value is blinking, press the DIGITAL PEAK button again so that the new peak value is held in memory.

- **Sub code marking during recording**
  In the following case, the A TIME (absolute time), Start ID and Program No. codes will be marked automatically.

Sub code	Condition for automatic marking
A TIME	• When recording starts from the beginning of the tape • When the previously marked A TIME is read and displayed
Start ID	• When the signal is input after the level of the input signal drops to a specified level (no-signal) for more than 3 seconds during recording. • When the first signal is input immediately after recording starts
Program No. (tune No.)	• When recording starts from the beginning of the tape • When the previously marked program No. is read out and displayed

- **To stop recording**
  Press the END button so that the End code is marked.
  This makes it easy to locate the position where next recording should be started; the A TIME codes marked in the new recording are continuous from those marked in the previous recording.

- **Sampling monitor**
  This is used to check the quality of the source sound before you start recording, or to check the recording level.
  - In the stop mode, press the O REC/REC MUTE button ...
  - Set the deck to the recording or rec-pause mode ...

  The SAMPLING MONITOR indicator lights and the source sound can be monitored.

Notes:
1. If the recording level is set to a value where the OVER level indicator lights continuously, the recording signal will saturate the tape and the sound will be distorted. Decrease the recording level to a level at which the OVER level indicator does not light.
2. Emphasis
   With emphasis, high-frequency signals are recorded after increasing their level (preemphasis); during playback this process is reversed (deemphasis). This improves the S/N ratio at higher frequencies.
   This deck incorporates only a deemphasis circuit, so it is possible to play back signals which were recorded with emphasis, however, it is impossible to record signals applying emphasis.

(No. 4-323)

XD-Z505 B/C/E/G/J

Record muting

This is used to leave an appropriate no-signal recorded section between tunes.

● When a section of the source you do not want to record is reached during recording, press the ○ REC/REC MUTE button then release it. The REC indicator blinks and a no-signal recorded section is left during record muting operation.

Press and release it. No-signal recorded sections are left.

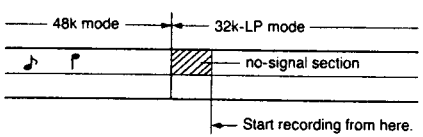
• About 4 seconds later, the REC and PAUSE indicators light and the deck enters the rec-pause mode.

● Press the ► PLAY button to start recording again.

To leave a no-signal recorded section of more than 4 seconds
Keep the ○ REC/REC MUTE button pressed continuously as long as you want to leave a no-signal recorded section. When the button is released after the above operations, the deck enters the rec-pause mode.
• A TIME codes will be written continuously even when the rec-mute mode is engaged.

• **To make recordings in different recording modes on one tape**
Be sure to leave a no-signal section before starting recording in the new mode.

Example: To change the recording mode from 48k to 32k-LP



① Set the deck to the rec-pause mode.
② Change the recoding mode.
③ Press the ○ REC/REC MUTE button.
• After 4 seconds, the deck enters the rec-pause mode. Press the ► PLAY button to start recording.

Note:
When making a recording, if you change the recording mode (48k, 44k, 32k or 32k-LP) in the middle of a tape, be sure to leave a no-signal section using the Record Mute function, etc. before starting recording in the new mode.

Synchro recording with CD player

Synchro recording refers to the process in which the deck starts recording synchronized with the CD player.

Before starting synchro recording, connect the connection cable to the COMPU LINK-1/SYNCHRO terminal of the CD player. (Refer to "Connections" on page 7.)

● Load a cassette and locate the position from which recording is to start.
● Press the ○ REC/REC MUTE button and ▮▮ PAUSE button simultaneously to set the deck to the rec-pause mode.
• Be sure to operate the DAT deck in the stop mode.
● Press the PLAY button of CD player.
• If the tunes to be recorded are selected using the programming facility, the deck records them in programmed order.

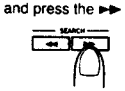
With the above operations, synchro recording is started automatically, leaving the required no-signal recorded sections. When CD playback is finished, the DAT deck stops automatically. And when the tape is rewound and stops automatically, the CD player also stops automatically.

Notes:
1. Synchro recording will start only when the ○ REC/REC MUTE button and the ▮▮ PAUSE button are pressed simultaneously in the stop mode.
2. Synchro recording is possible only with JVC CD players which have COMPU LINK-1/SYNCHRO terminals.

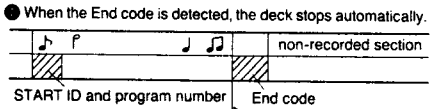
Blank search

• This is used to locate the point in the middle of a tape where the previous recording ended, so a new recording can be made from that position.

● Load a cassette and press the ►► (fast-forward) button.



● When the End code is detected, the deck stops automatically.



The tape is automatically rewound to the beginning of the End code and stops there.

• When an End code is not marked, the deck automatically stops just before the non-recorded section of the tape.
• If new tape is loaded, the tape is first fast-forwarded and after 5 seconds, the tape is rewound.

• **Non-recorded sections (blank) and no-signal recorded sections**
In DAT decks, a non-recorded section (blank section) refers to that part of the tape which has not yet been used for recording; this distinguishes it from a no-signal recorded section, which has been used for recording but without a music signal.

In conventional compact cassette tapes, no-signal sections are left between tunes, however, in DAT cassettes, the track pattern is encoded and A TIME codes and other signals are encoded continuously in the sub code area.

Note:
To make a non-recorded tape, adjust the INPUT LEVEL controls to "MIN", then start recording. The previously recorded signal will be erased. New A TIME codes will be written to the tape.

Digital recording

• Check whether digital recording is possible or not referring to the DIGITAL INPUT indicator and the COPY PHBT indicator.

● Set the SOURCE switch to COAXIAL or OPTICAL and check the DIGITAL INPUT indicator.

• When the source sound is input..

DIGITAL INPUT indicator	Digital signal is input or not
blinks slowly	not input
lights	input
blinks rapidly	input (recording is impossible)

• When the DIGITAL INPUT indicator blinks rapidly, digital recording cannot be performed. Set the SOURCE switch to ANALOG to perform analog recording. (The DIGITAL INPUT indicator goes off.)

● Check the COPY PHBT indicator in the sampling monitor mode.

	DAT deck mode		Status of recorded tape
	during sampling monitoring	during recording	
COPY PHBT Condition of the indicator	not lit	not lit	Further digital copying is possible
	blinks	lights	Further digital copying is not possible
	not lit	blinks	Only one copy is possible

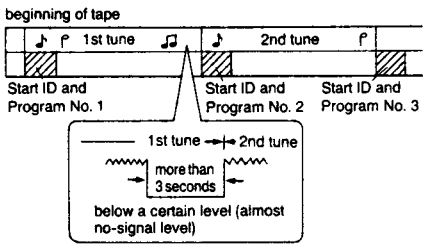
• If a source cannot be recorded, check the condition of the COPY PHBT indicator in the sampling monitor mode.

Notes:
1. When you attempt to record a source the digital recording of which is impossible, the deck enters the rec-pause mode automatically, and the DIGITAL INPUT indicator blinks rapidly.
2. When digitally recording some CDs, depending on the CD player used, sometimes the beginning of certain tunes will be cut or noise recorded. This is because the digital input signal is unstable and the DAT deck enters the rec-pause mode automatically when the mode of the CD player is changed. In this case, perform digital recording as follows:
① Set the DAT deck to the rec-pause mode.
② Locate the position slightly before that from which recording should start. Now start the CD player.
③ Press the ► PLAY button of the DAT deck just before the required tune.

SUB CODE MARKING

Automatic Start ID and Program No. code marking

When recording is started from the beginning of a tape, the Start ID and Program No. codes will be marked automatically.


beginning of tape
1st tune
2nd tune
Start ID and Program No. 1
Start ID and Program No. 2
Start ID and Program No. 3
1st tune
2nd tune
more than 3 seconds
below a certain level (almost no-signal level)

- When the signal drops below a certain level for more than 3 seconds between tunes, the next Start ID and Program No. codes are marked automatically.

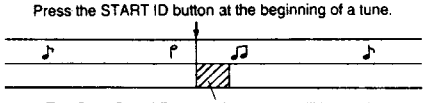
Notes:

1. When a very quiet sound (such as a pianissimo passage) continues for a relatively long time, Start ID and Program No. codes might be marked erroneously.
2. When the gap between tunes is less than 3 seconds, neither the Start ID nor Program No. codes will be marked.
3. When operating using the remote control unit, the ST-WRITE button has same function as the START ID button of the main unit.

Manually marking Start ID and Program No. codes

The Start ID and Program No. codes are marked by pressing the START ID button during recording when the gap between tunes or no-signal portions is less than 3 seconds.

Press the START ID button at the beginning of a tune.



The Start ID and Program No. codes will be marked.

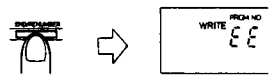
- With this operation, manual marking is possible anywhere you want Start ID and Program No. codes.
- When recording is to start from the middle of the tape, first rewind the tape to read the Program No. codes which have already been marked.

Note:
Another Start ID code cannot be marked for 9 seconds after automatic or manual marking has been started. (When recording in the 32k-LP mode, this period becomes 18 seconds.)

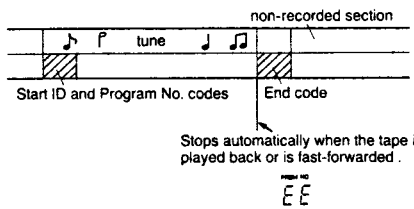
Marking the End code (Manual)

Be sure to mark the End code when you stop recording in the middle of a tape.

❶ Press the END button at the end of recording.



❷ When the End code has been marked, the tape is rewound to the beginning of the End code and the deck stops automatically.


non-recorded section
tune
Start ID and Program No. codes
End code
Stops automatically when the tape is played back or is fast-forwarded .
EE

Note:
The End code cannot be marked in the stop mode.

Marking sub codes after recording

- **Outline of operation for marking sub codes after recording**
  We recommend that sub codes are marked after recording.

Operate as follows:

① First play back the recorded tape and check that Start ID codes have been marked correctly at the beginning of each tune.
② Delete unnecessary sub codes (Start ID codes).
③ Insert additional Start ID codes at the beginnings of any required tunes.
④ Mark the Start ID code using the AUTO ID EDIT function. (See page 19.)
⑤ Renumber the Program No. codes with the RENUMBER function. (See page 18.)

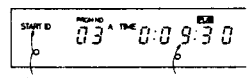
- When a Start ID is detected during playback, an indicator is displayed in the display window. Each time a Program No. or End code is detected, the PRGM NO changes.

Note:
Marking the sub codes is impossible when the safety tab (accidental erasure prevention tab) is open. Check that the safety tab is closed if you want to mark sub codes after recording.

Deleting sub codes

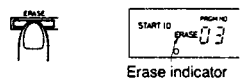
- To delete Start ID (Program No.) codes

❶ Play the tape and locate unnecessary Start ID codes.



Start ID indicator — When an unnecessary Start ID is marked at 9 minutes 30 seconds

❷ Press the Start ID erase button while START ID is displayed.



Erase indicator

- The tape is rewound and stops at the beginning of the unnecessary Start ID code.

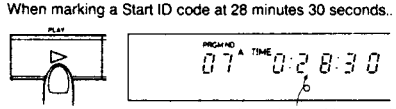
❸ When an unnecessary Start ID code has been erased, the START ID indicator disappears and the tape stops automatically.
- The Program No. is also erased at the same time if it has been marked with the Start ID code.

- **Deleting the End code**
  When recording starts after detecting the End code, the End code will be erased automatically.

Marking Start ID codes

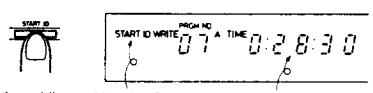
- This is used to mark Start ID codes at the required points.

❶ Start playing the tape and find the point a Start ID code should be marked.
Example:
When marking a Start ID code at 28 minutes 30 seconds..



the position of 28 minutes 30 seconds

❷ Press the START ID button.



Indication while marking the Start ID code (when the Start ID code has been encoded) — Recorded from an absolute time of 28 minutes 30 seconds

❸ When marking is finished, the "START ID WRITE" indicator goes out.

Repeat the above procedures ❶ through ❸ to mark all required Start ID codes.

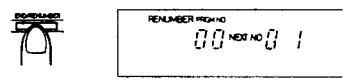
Notes:

1. Be sure to mark Start ID codes leaving a gap of at least 18 seconds (36 seconds in the 32k-LP mode).
2. While a Start ID code is being marked, sound may be skipped at the beginning and the end of the Start ID code; this is not abnormal.

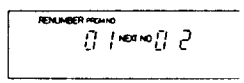
Marking Program No. codes (Renumbering)

- After marking Start ID codes is completed, insert Program No. codes at the same points.

❶ Press the RENUMBER button in the stop mode.



❷ The tape is rewound to its beginning and then Program No. codes are marked at the points where Start ID codes are detected, in sequence starting from 1.



When Program No. code 1 is renumbered..

- The numbers shown by the PRGM NO and NEXT NO indicators are counted up.

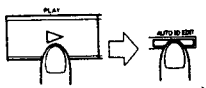
❸ When the tape reaches its end, this operation is completed and the tape is rewound to the start automatically.
- When the End code is detected, the deck stops at the beginning of the End code.

Note:
Renumbering cannot be done during recording. Perform renumbering in the stop mode.

AUTO ID EDIT operations

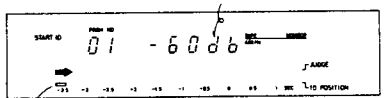
This function is to re-locate Start ID codes which are being marked slightly after the beginning of a tune by the Start ID marking function.
Start ID codes are re-marked from 0.5 second before the beginning of the tune.
With this function, the beginning of any tune can be located more accurately.

❶ Play back the tape and press the AUTO ID EDIT button at the point from which the Start ID code is to be remarked.



The tape is stopped and is then rewound to the point 6 second before.

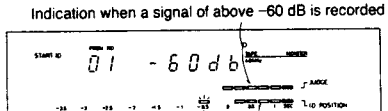
The presence of a music signal is judged at the −60 dB level. If a blank space is not detected, the level at which judgement is performed becomes −50 dB or −40 dB.



The point at which Start ID codes are marked is adjusted in steps of 0.25 seconds

❷ When the appropriate point is detected, the ID POSITION indicator blinks.
Example:

Indication when a signal of above −60 dB is recorded



Indication of the most appropriate marking point

Indication of the recorded Start ID code

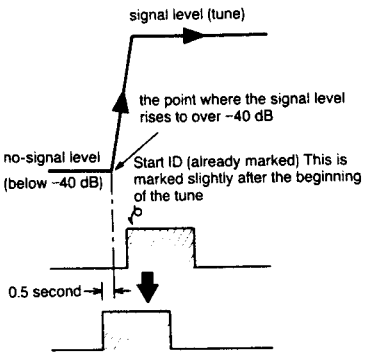
❸ Press the START ID button.

- The START ID WRITE indicator lights and the Start ID and Program No. codes are re-marked.
- When remarking is complete, the deck stops automatically.

- The appropriate marking point is also detected if the AUTO ID EDIT button is pressed in the stop mode.

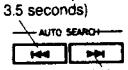
- The JUDGE indicator lights when the tune is found.

- The appropriate Start ID code marking point is..


signal level (tune)
the point where the signal level rises to over −40 dB
no-signal level (below −40 dB)
Start ID (already marked) This is marked slightly after the beginning of the tune
0.5 second
With the AUTO ID EDIT function, the Start ID code is marked 0.5 second before the beginning of the tune. This is a more appropriate point.

- To move the Start ID code marking point..
  Press the ⏮ or ⏭ button while the ID POSITION indicator is blinking.

Every time this is pressed, the Start ID code is moved backward in steps of 0.25 seconds. (up to 3.5 seconds)



Every time this is pressed, the Start ID code is moved forward in steps of 0.25 seconds. (up to 1 second)

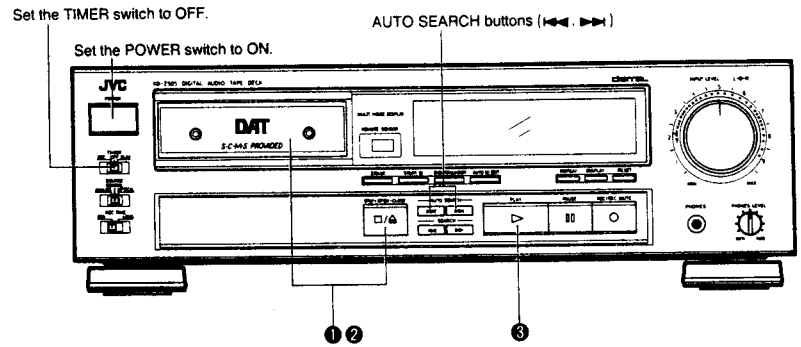
- When all of the JUDGE indicators light and "0" blinks in the ID POSITION indicator.
  This indicates that an appropriate marking point below −40 dB cannot be found. Repeat operation ❶ again.

Notes:
1. To cancel the AUTO ID EDIT function while it is operating, press the ■ STOP or ▶ PLAY button.
2. When no tune is detected, the JUDGE indicator will not light.
3. When a tape on which A TIME codes have not been marked is loaded, this function will not work.
4. When a section with a no-signal level (below −40 dB) cannot be detected, mark the Start ID code referring to "marking Start ID codes" on page 18.
5. Start ID codes are marked and shown by the ID POSITION indicator in steps of 0.25 seconds. They could sometimes by delayed if the AUTO ID EDIT button has been pressed.

PLAYBACK

— Operate in numerical order. —

Before starting operation, set the TIMER switch to OFF.



❶ Press the ■/⏏STOP/OPEN-CLOSE button to open the cassette tray. (See page 9.)
❷ Load a cassette with the window of the cassette facing up and close the tray.
❸ Press the ▶ PLAY button. Playback will start.
- The sampling frequency is displayed in the display window.

- **When a tape is played back to its end...**
  The auto rewind function rewinds the tape to its start at which point it stops automatically.
- **To stop playback in the middle of a tape..**
  Press the ■ STOP button. Press it again to open the cassette tray.
- **If the EMPHASIS indicator lights..**
  When the tape is reached a position where emphasis is applied, high-frequency signals are deemphasized automatically by the deemphasis circuit.
- **If a tape recorded in 32k-LP mode is played back..**
  The 32 kHz and "LONG PLAY" indicators light in the display window.

- **To fast-forward or rewind the tape so you can hear the speeded-up sound at a lower volume..**
  Press the ◀◀ or ▶▶ button during playback. The tape advances at 3 times normal speed.

To cue to a tune in the reverse direction (review function)

To cue to a tune in the forward direction (cue function)

- When the button is released, normal playback will resume.

Notes:
1. If the End code is detected while the tape is being played back or fast-forwarded, the tape stops automatically. Press the ◀◀ button and rewind the tape.
2. If a new tape is played back, the tape is rewound to its start within 10 seconds.
3. If the non-recorded section of a recorded tape is played back, the tape is rewound to the end of the last tune within 10 seconds and stops automatically.
4. During high-speed playback, at the point where the mode was changed in recording, sound might not be heard. In this case, first perform normal playback and then set to the fast-forward or rewind mode.

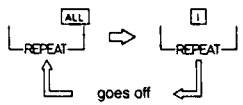
- **When playing back a tape you have recorded yourself (recorded on blank tape)**
  - **When the cassette is loaded..**
  - If A TIME codes have been marked on the tape, they are detected and displayed in the display window.
  - When a rewound tape is loaded, first (— 00:01) is displayed and then the A TIME code is displayed.
  - Program Nos. will be displayed when they are detected.
  - **When no Program No. is displayed in the PRGM No. display:**
    Program No. codes are marked at the beginnings of tunes together with Start ID codes. If the cassette is loaded/unloaded in the middle of a tune and if a Program No. code has not been marked at that point, no Program No. will appear in the display. To display the Program No. in this case, continue playback or set the deck to the fast-forward/rewind mode so that the Program No. code is read out.

Auto repeat

This is used to play back tunes you want to listen again.

ALL: all tunes are repeated
1: the current tune is repeated

Every time the REPEAT button is pressed, the following indications are displayed.

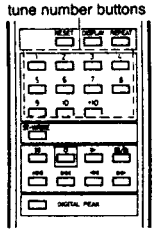


(Auto repeat function is cancelled.)

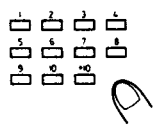
Direct access playback

Playback with program No. codes (can only be performed using the remote control unit)

tune number buttons



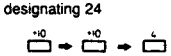
- When designating Program Nos. 1 to 10.



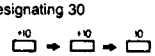
Press the Program No. button corresponding to the number of the tune.

- When designating tune No. 11 or higher..
  Designate the required tune No. by pressing the +10 button and a Program No. button. (When the +10 button is pressed once, the "NEXT NO -1" is displayed.

example: when designating 24



example: when designating 30

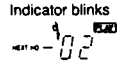


- When the program No. code of the required tune is detected, playback starts.

Playback using Start ID codes

To find the beginning of the previous tune..

Indicator blinks

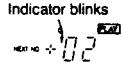


When the ⏮ button is pressed three times, the tape is rewound to the beginning of the tune 2 before the current tune.

- Every time this is pressed, the start of the previous tune is detected.

To find the beginning of the next tune..

Indicator blinks



When the ⏭ button is pressed twice, the tape is fast-forwarded to the beginning of tune after next.

- Every time this is pressed, the start of the next tune is detected.

⇩

- When the Start ID code of the required tune is detected, playback starts.

Notes:

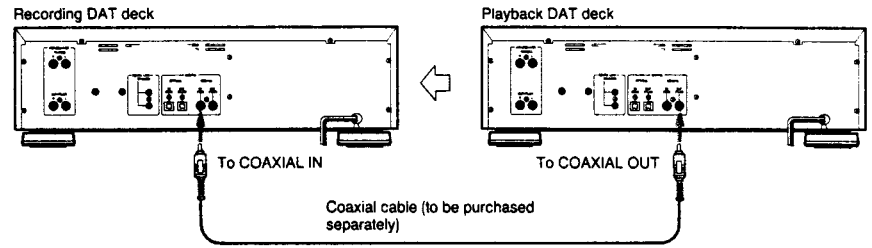
1. Tapes on which Program No. codes have not been marked cannot be used for this operation if designating is performed using the tune number buttons,
   Tapes on which Start ID codes are not marked cannot be used for this operation using the⏮/⏭AUTO SEARCH button.
2. When the ⏸ PAUSE button is pressed while searching, the deck enters the pause mode after locating the desired tune.

DIGITAL DUBBING

— Operate in numerical order. —

Connection (COAXIAL connection)

When two XD-Z505 DAT decks are used together, digital dubbing of tapes is possible.



Set the SOURCE switch to the COAXIAL position.

- **Operations**

	Operation of recording deck		Operation of playback deck
1	Load a blank DAT cassette. • Check that the safety tab of the cassette is in place. • When dubbing from the middle of the tape, the deck should first read out the A TIME and the Program No. codes.	2	Load the DAT cassette from which dubbing is to be performed. • When dubbing the tunes in the order in which they were recorded, the program number should be displayed.
3	Set the SOURCE switch to "COAXIAL". • The DIGITAL INPUT indicator lights in the display window.		
4	Set the REC TIME switch to the recording mode. • 32k mode ... STD • 32k-LP mode ... LONG		
5	Set the deck to the record mode from the rec-pause mode.		
	• When Start ID codes have been encoded on the tape from which dubbing is to be performed, they will be copied to the new tape. • The signal on the new tape will be at the same level as that on the tape from which dubbing is performed.	6	Press the ► PLAY button to start the dubbing operation.

- **When an OPTICAL cable is used for connection:**
  When using an optical digital cable, connect the OPTICAL IN terminal of the recording deck to the OPTICAL OUT terminal of the playback deck, and set the SOURCE switch to the OPTICAL position.

- If the tape speed (recording mode) has been changed in the middle of the tape being dubbed, dubbing is interrupted, the deck is set to the rec-pause mode and then the dubbing operation resumes.

- In digital dubbing, the copy has the same sampling frequency as the source. The recording mode cannot be changed using the recording deck's controls.

Sampling frequency of the playback tape	Sampling frequency of the recorded tape
48 kHz	48 kHz
44.1 kHz	44.1 kHz
32 kHz	32 kHz

Notes:

1. Use either the COAXIAL connection (coaxial cable) or the OPTICAL connection (optical digital cable) for digital connection.
2. When a tape with a digital copy prohibit code is loaded, the DIGITAL INPUT indicator blinks rapidly. In this case, the deck cannot be set to the record mode.
3. If the COPY PHBT indicator blinks when a tape is being played back, digital dubbing of the tape is impossible.

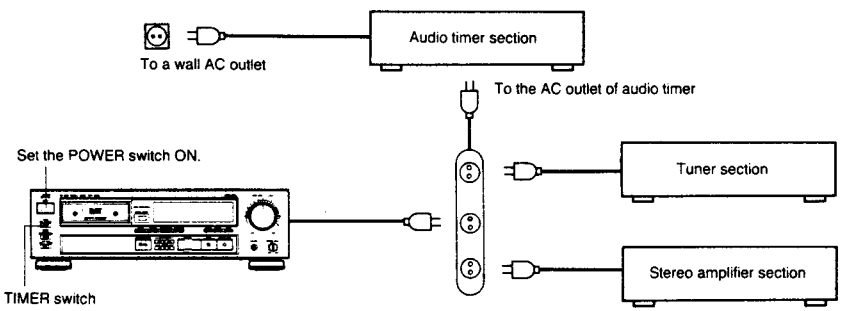
(No. 4323)

TIMER RECORDING AND PLAYBACK

- When an optional audio timer is used together with the deck, recording and playback can be started at the desired time (when you are not at home, etc.)
- When an audio timer which can perform repeated ON/OFF switching is used, repeated recording and playback can be performed.
- Refer to the instruction manual of the audio timer used before starting timer recording/playback.
- A DAT cassette with its safety tab open cannot be used for recording.

- **Connection to audio timer**

Set the POWER switches of all components to ON.



Operation procedure	Timer recording	Timer playback
1. Timer operations	• Check that the POWER switches of all components connected to the timer are set to ON. • Operate the timer so that it turns on the power to each component.	
2. Amplifier/tuner operations	• Tune to the required broadcast. FM broadcast: TUNER DSR broadcast: LINE	• Set the TAPE MONITOR switch of the amplifier to ON. • Adjust the volume with the amplifier's volume control.
3. Deck operations	• Load the cassette on which the recording is to be made and operate for recording. (Refer to page 13.)	• Load a prerecorded cassette and operate for playback. (Refer to page 20.)
4. Timer operations	• Program the timer's ON time for when recording/playback is to start and its OFF time for when it is to stop. • When programming the timer's ON time and OFF time, allow a margin of 1 minute for each. • Check that the power supplies of all components connected to the timer are turned OFF.	
5. Deck operations	• Set the TIMER switch to the REC position. Recording will start when the preset time is reached.	• Set the TIMER switch to the PLAY position. Playback will start when the preset time is reached.

Notes:

1. After timer recording/playback has finished, be sure to set the TIMER ON/OFF switch of the DAT deck to its OFF position.
2. After recording to the end of the tape in timer recording, rewind the tape with the ◀◀ button.

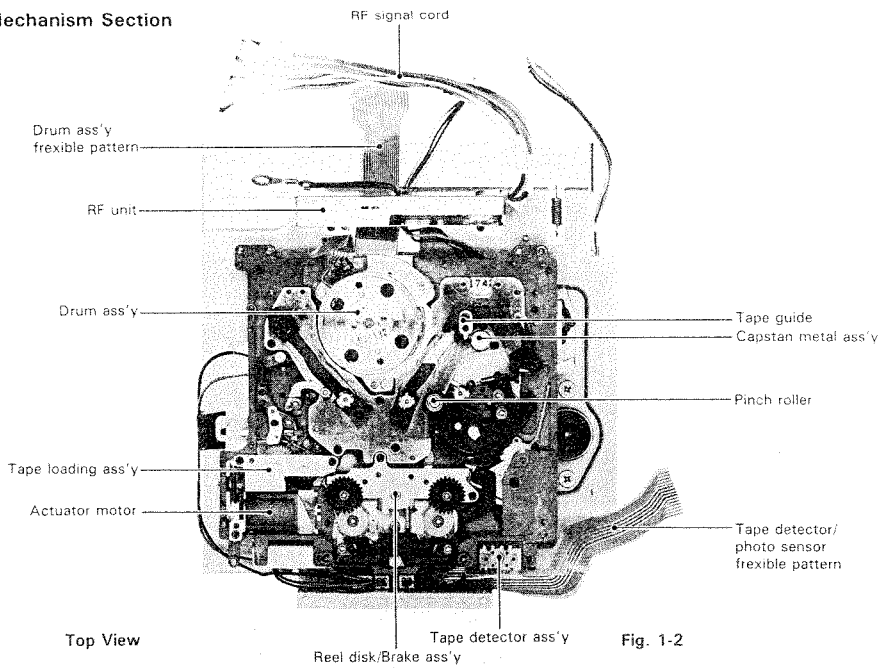
TROUBLESHOOTING

What appears to be a malfunction may not always be serious. Make sure first..

1. **Deck does not function when any buttons are pressed.**
   * Is a cassette loaded?
   * Had 5 seconds elapsed after the power was turned ON?
2. **Playback (recording) starts when the power is turned ON.**
   * Is the TIMER switch set to PLAY(REC)?
3. **Recording is impossible.**
   * Is the safety tab of the cassette open?
4. **Tape does not run.**
   * Has the ▮▮ PAUSE button been pressed?
5. **Playback sound is not output even although the tape runs.**
   * Is the volume control set to its minimum position?
6. **Direct access playback cannot be done correctly.**
   * Are Start ID codes marked on the tape?
   * Have adjacent Start ID codes been marked within 18 seconds of each other (36 seconds in the 32k-LP mode)?
7. **Recording of digital input signal is impossible.**
   * Has the SOURCE switch been set to ANALOG?
   * Does the COPY PHBT indicator light in the sampling monitor mode?
8. **Cassette cannot be loaded. (Cassette is unloaded immediately after it is loaded.)**
   * Is the tape damaged?
9. **Recording cannot be done correctly.**
   * Are the heads dirty?
10. **Program No. does not change when the tune changes.**
    * Did recording start from the middle of a tape which was previously used for recording?
11. **Tape does not run even though the ▶ PLAY button is pressed.**
    * Has a non-recorded tape been loaded?

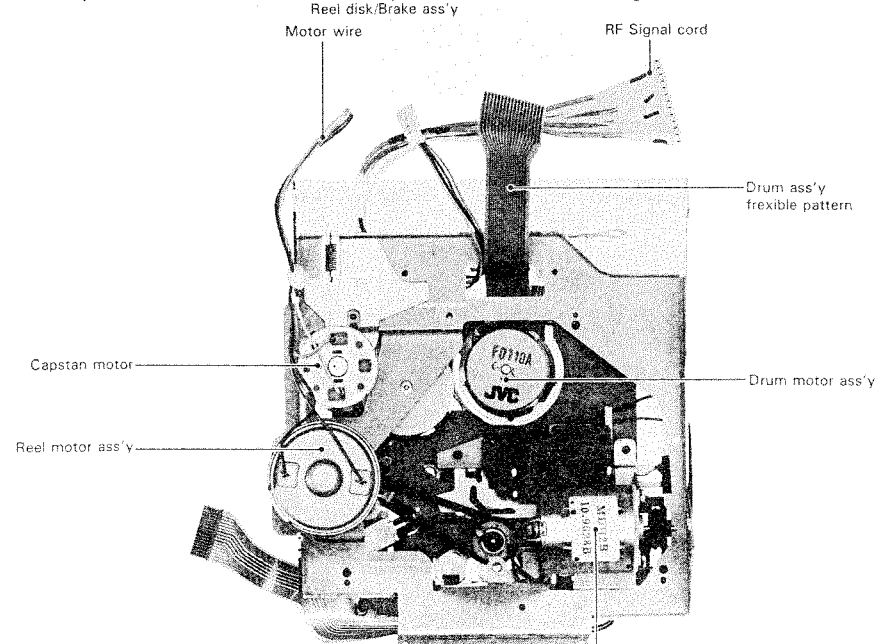
- If the deck or tape malfunctions, the recording may not be performed correctly.
- We recommend that you make a test recording before making an important recording.

■ Mechanism Section



Top View

Fig. 1-2



Bottom View

Fig. 1-3

2 Removal of Main Parts

Exterior

■ Upper cover

Remove the 4 screws on the left and right and the 2 screws at the rear.

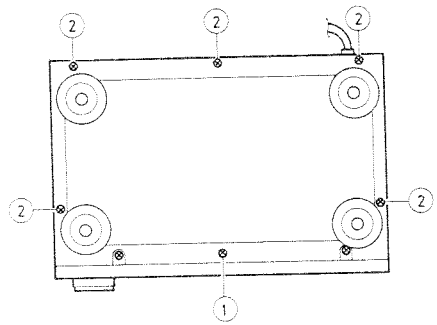


Fig. 2-1

■ Bottom Plate

Remove the screw (1) at the middle of the front and the 5 screws (2) along the edge.

■ Removal of the Front Plate (Aluminum Plate)

1. Remove the 5 screws (3) and (4) from the upper and lower parts of the front plate.
2. Remove the double-sided tape that attaches the front plate (aluminum plate) to the front panel (resin).

■ Assembly of the Front Panel (Assembly of the Indicator and Front Panel)

1. Remove the 4 screws (4) and (8) from the top of the front panel.
2. Use a hexagonal wrench to remove the 2 screws (5) attaching the mechanism cassette tray plate.
3. Remove the 2 screws (6) attaching the mechanism and the front plate assembly.
4. Remove the 4 screws (7) from both sides of the front panel assembly.
5. Remove the screw (9) from the hole at the top center.
6. Remove the screw (10) that attaches the earth wire to the right side of the chassis.
7. The connector of the power supply switch circuit board (CN01)
   Remove the wire of the FL board from main board (CN03, CN401), the input level volume wire from main board (CN302) and from input level volume jack board (CN301, and remove the wire to the headphone amplifier from main board (CN303). Then pull at the front surface of the front panel assembly to remove the front panel.

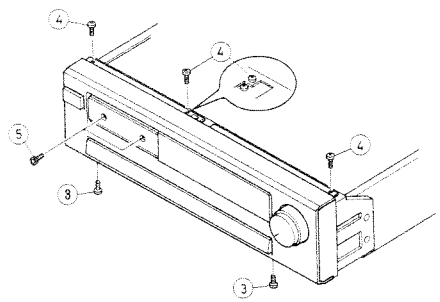


Fig. 2-2

■ Mechanism Assembly

1. Remove the upper cover and remove the screw (11) attaching the mechanism stopper to the chassis.
2. Remove the 2 screws (12) attaching the mechanism bracket to the chassis.
3. Use a hexagonal wrench to remove the 2 screws (5) attaching the cassette tray plate.
4. Remove the 2 screws (6) attaching the mechanism and front plate assembly.
5. Remove the connector of the mechanism control board (servo board).
6. Pull out the mechanism toward the rear.

(1) Remove CN301 from the jack board.
(2) CN303/CN03/CN401/CN302 of the main board
(3) CN01 of the power switch

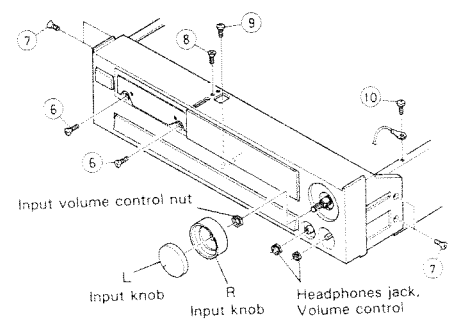


Fig. 2-3

■ Servo Board

It is possible to remove both the mechanism assembly and the servo board assembly simultaneously, or to remove only the servo board assembly. Remove the screw at the front center of the servo board, and remove the connector by lifting it up from the mechanism after sliding the board assembly toward the rear.

■ Front Panel Interior Parts

Power supply switch assembly
Remove the 2 screws (13) attaching the power supply switch bracket.
Timer switch
Remove the tabs attaching the timer switch board at 4 locations (A).
FL board assembly
Remove the 8 screws (14) attaching the board. Fold the panel up and down and remove it from the top.
Mechanism button
Remove the FL board assembly and the 7 screws to remove the button.
Headphone amplifier board assembly
Pull off the headphone volume knob.
Remove the nuts from the headphone jack and the volume control.
Input volume assembly
Pull off the input control knob.
Remove the volume control nut.

■ Power Supply Transformer

Remove power supply connector CN02 from the main board.
Remove (21) with a screwdriver as shown in Fig. 2-7.

■ Jack Board (Input) Assembly

Remove the screw (14) from the rear panel.

■ Main Board Assembly

1. Remove the 7 screws (15), (16), (17), (18) and (19) attaching the jack and the heat sink to the rear panel.
2. Remove the 3 screws (20) attaching the center main board to the center chassis and the left chassis.
3. Lift up the board.

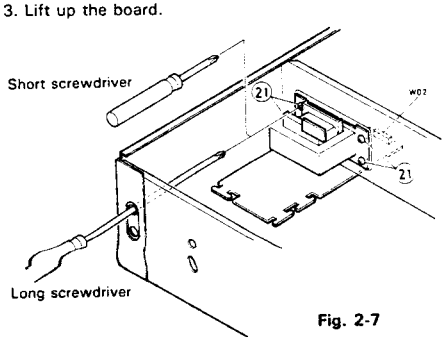
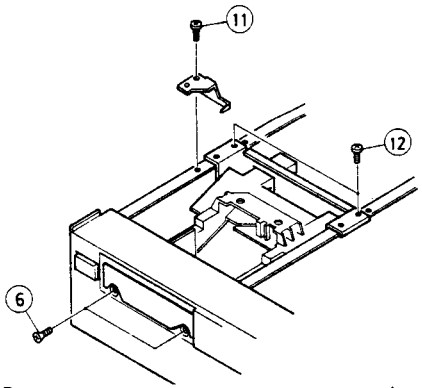


Fig. 2-7



① Remove CN501, CN502 and CN503 from the servo board.

Fig. 2-4

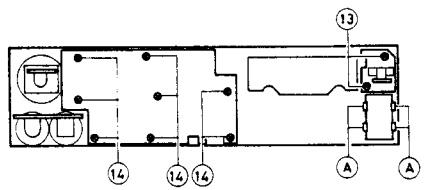


Fig. 2-5

① Remove CN02, CN03, CN401, CN303 and CN302 from the main board.
② CN501, CN502 and CN503 of the servo board

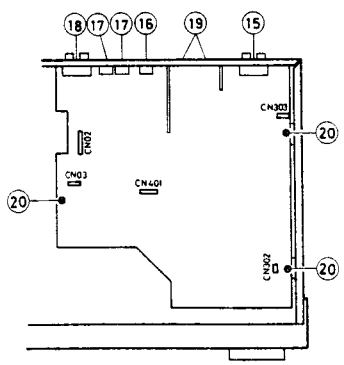


Fig. 2-6

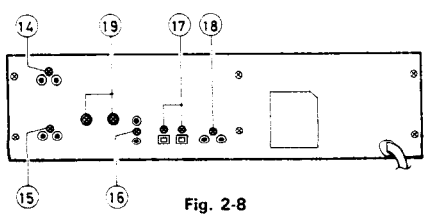


Fig. 2-8

Mechanism Section

[please see detail sheet (Exploded view)]

1. Remove the 2 screws (F15) attaching the mechanism holder.

■ Cassette Compartment Assembly

(cassette loading unit)

1. Rotate the gear and take out the cassette tray toward the front. (arrow in Fig. 2-9)
2. Remove connectors CN552 and CN553 from the left rear of the servo board.
3. Remove the 4 screws (98) of the cassette compartment assembly chassis.
4. Remove the screw attaching the earth wire coming from the RF amplifier case.
5. Remove the cassette compartment assembly.

■ RF Board

1. After removing the cassette compartment, you will find the RF assembly attached at the rear of the diecast chassis. Remove the head-flexible connector and the RF board input/output connector.
2. Remove the 2 screws (110) attaching the RF board.

■ How to Remove the Servo Board

Remove wire connectors CN603, CN602, CN601 and CN551 leading to the servo board.

■ Drum Head Assembly (21)

Remove the 3 screws (22) attaching the drum assembly. (When pushing the head cleaner arm away from the drum, the screw under the cleaner can be removed.)

■ Sub-chassis Assembly (15)

1. Remove the drum head assembly (21).
2. Remove the screw (20) attaching the tape guide.
3. Remove the 2 screws (25) and (29) attaching the head cleaner and cleaner base.
4. Remove the C washer (40) attaching the pinch rollter assembly.
   Then remove the tension spring (44) of the guide roller.
5. Remove the washer (49) attaching the guide post (47). (There is a compression spring (50) under the washer. Make sure not to loose it.)
6. Remove the 3 screws (109) attaching the capstan motor.

■ Actuator Unit (51)

1. Remove the 3 screws (56).
2. Remove the actuator belt.

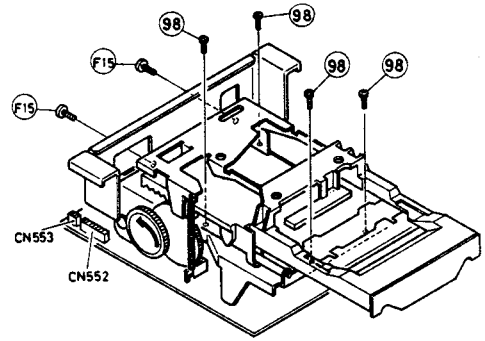


Fig. 2-9

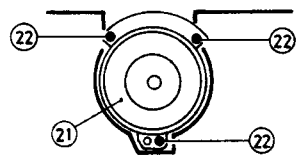


Fig. 2-10

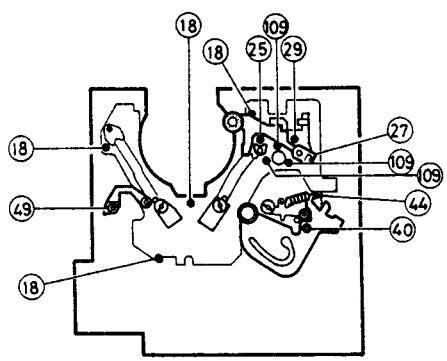


Fig. 2-11

■ Mechanism Section

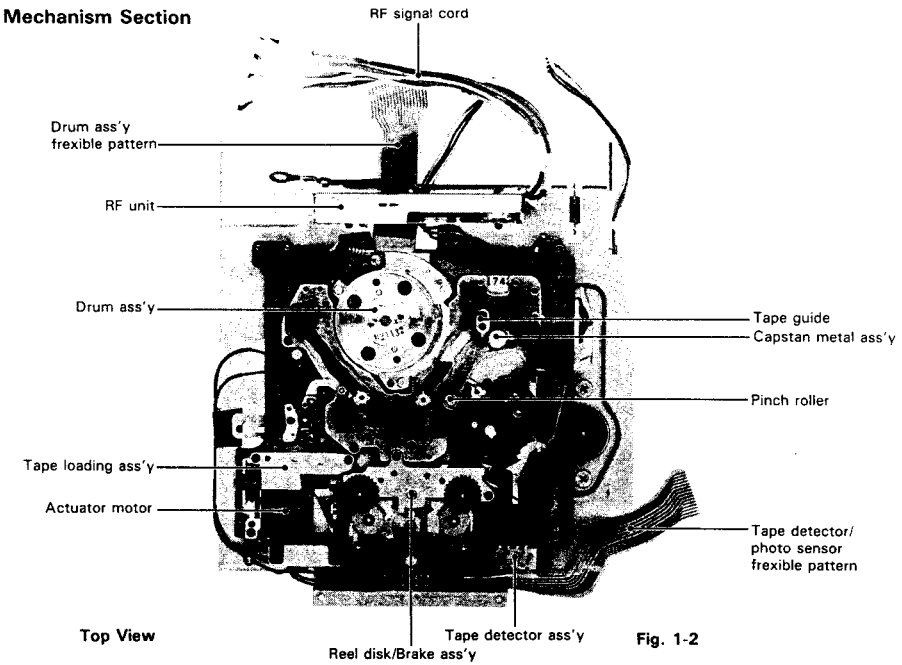


Fig. 1-2

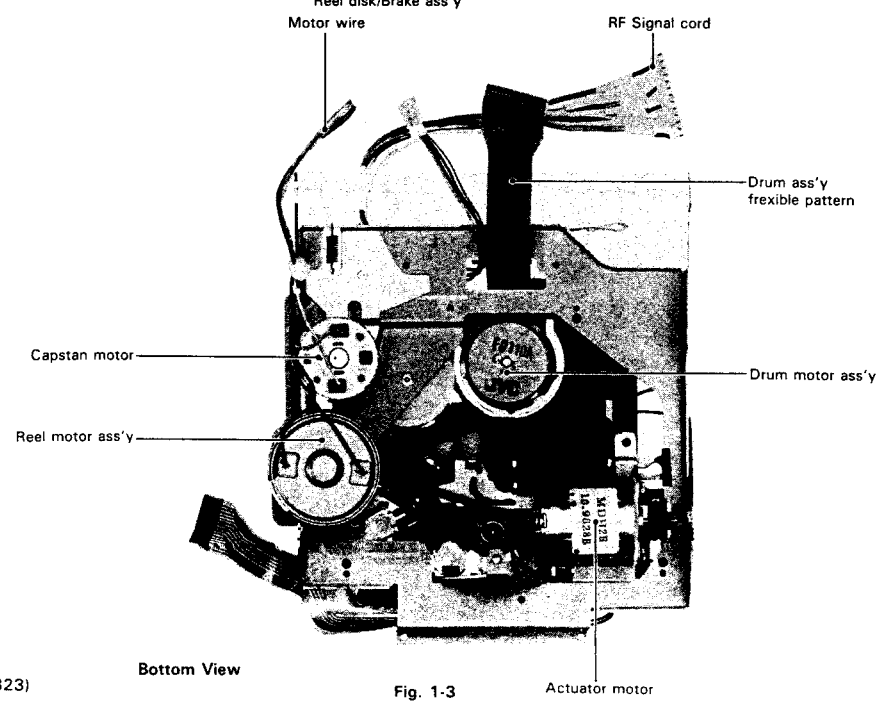


Fig. 1-3

2 Removal of Main Parts

Exterior

■ Upper cover

Remove the 4 screws on the left and right and the 2 screws at the rear.

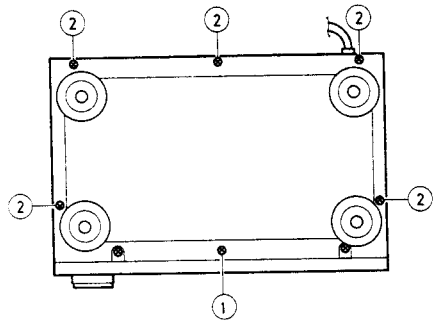


Fig. 2-1

■ Bottom Plate

Remove the screw (1) at the middle of the front and the 5 screws (2) along the edge.

■ Removal of the Front Plate (Aluminum Plate)

1. Remove the 5 screws (3) and (4) from the upper and lower parts of the front plate.
2. Remove the double-sided tape that attaches the front plate (aluminum plate) to the front panel (resin).

■ Assembly of the Front Panel (Assembly of the Indicator and Front Panel)

1. Remove the 4 screws (4) and (8) from the top of the front panel.
2. Use a hexagonal wrench to remove the 2 screws (5) attaching the mechanism cassette tray plate.
3. Remove the 2 screws (6) attaching the mechanism and the front plate assembly.
4. Remove the 4 screws (7) from both sides of the front panel assembly.
5. Remove the screw (9) from the hole at the top center.
6. Remove the screw (10) that attaches the earth wire to the right side of the chassis.
7. The connector of the power supply switch circuit board (CN01)
   Remove the wire of the FL board from main board (CN03, CN401), the input level volume wire from main board (CN302) and from input level volume jack board (CN301, and remove the wire to the headphone amplifier from main board (CN303). Then pull at the front surface of the front panel assembly to remove the front panel.

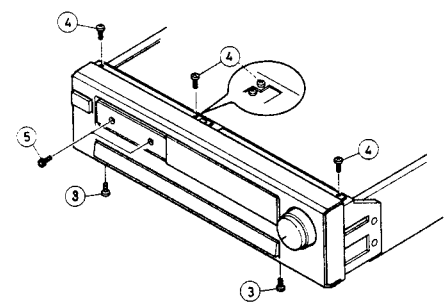


Fig. 2-2

(1) Remove CN301 from the jack board.
(2) CN303/CN03/CN401/CN302 of the main board
(3) CN01 of the power switch

■ Mechanism Assembly

1. Remove the upper cover and remove the screw (11) attaching the mechanism stopper to the chassis.
2. Remove the 2 screws (12) attaching the mechanism bracket to the chassis.
3. Use a hexagonal wrench to remove the 2 screws (5) attaching the cassette tray plate.
4. Remove the 2 screws (6) attaching the mechanism and front plate assembly.
5. Remove the connector of the mechanism control board (servo board).
6. Pull out the mechanism toward the rear.

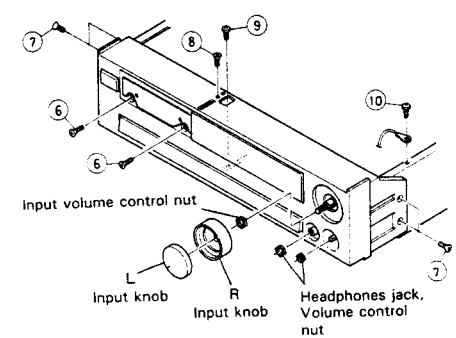


Fig. 2-3

■ Reel Disk Unit (60)

1. Remove the 2 screws (61) attaching the reel disk unit.
2. Remove the left and right tension threads (64) from the (X) and (X') points of the reel stand chassis.
3. Pull up the reel stand unit. The [Y] point will be obstructed by the mechanism chassis, so pull the reel stand unit upward while moving it back and forth and to the left and right.

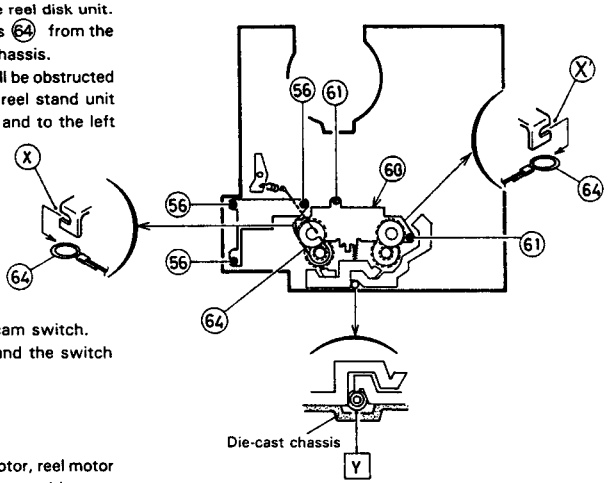


Fig. 2-12

■ Cam Switch Assembly (72)

Remove the 2 screws (73) attaching the cam switch. (Make sure to align the assembly switch and the switch guide (68)) (black resin).

■ Capstan Motor (90)

Remove the capstan motor. (The actuator motor, reel motor and the capstan motor belt can then be removed.) Remove the screw attaching the motor. (The other motors can be removed in assembled condition).

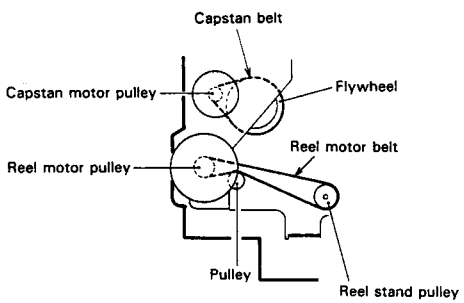


Fig. 2-14

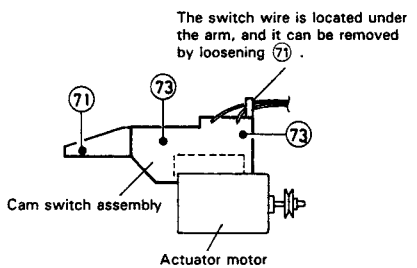


Fig. 2-13

3 IC Block and Pin Functions

■ IC101,IC201
UPC4570HA

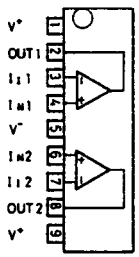


Fig. 3-1

■ IC141,IC241
NJM5532D

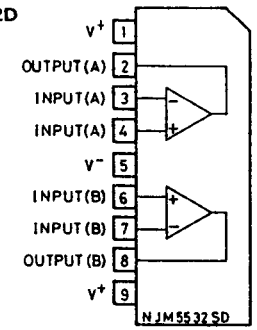


Fig. 3-2

■ IC371
M5218L

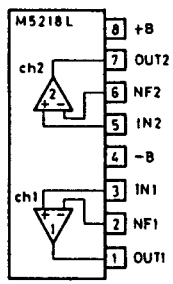


Fig. 3-3

■ ICA01
TA8139F

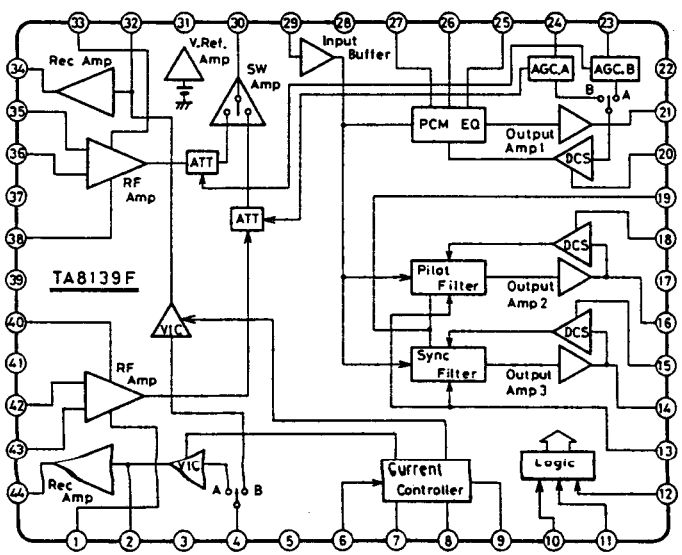


Fig. 3-4

■ IC402,IC403
TC74HCU04AP

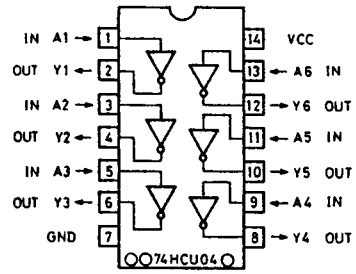


Fig. 3-5

■ IC406
TC74HC02AP

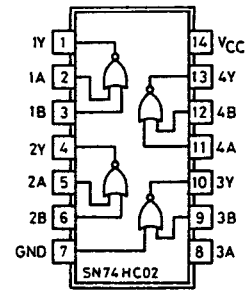


Fig. 3-6

■ IC407
TC74HC74AP

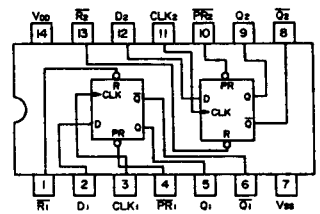


Fig. 3-7

■ IC408
CX23065A

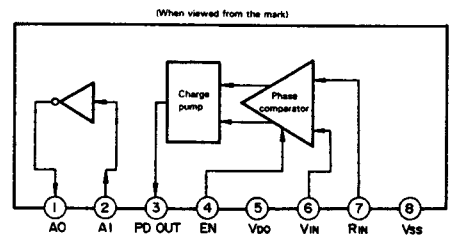
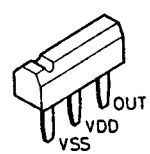


Fig. 3-8

■ IC451
MN1280 (Q)



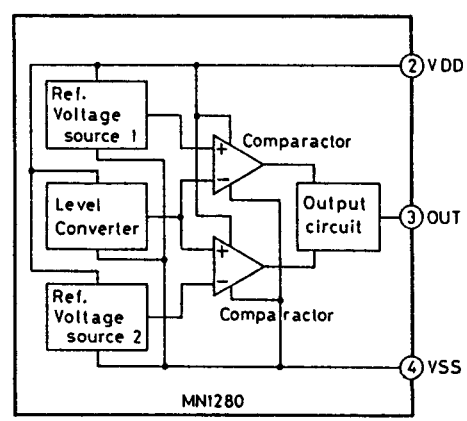


Fig. 3-9

■ IC501 TC9226F

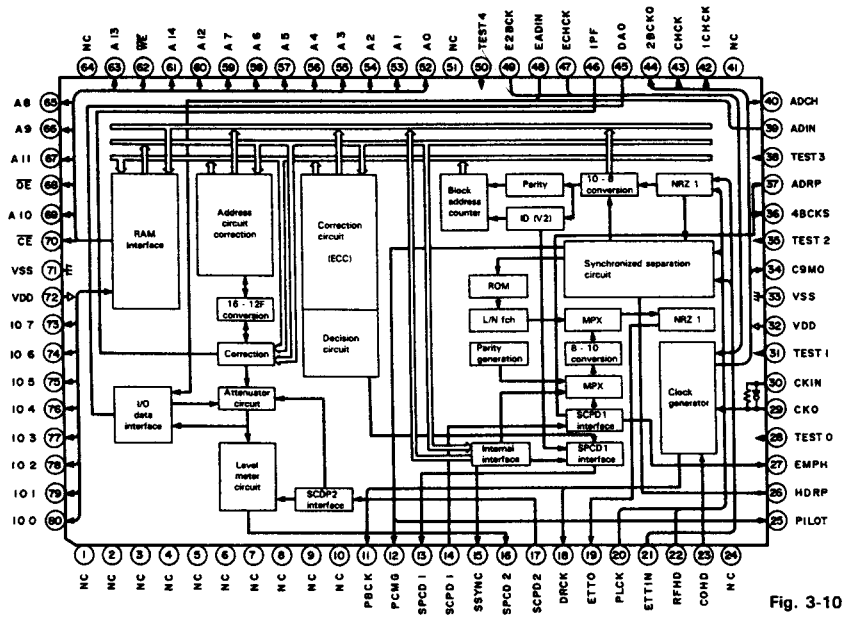


Fig. 3-10

■ IC521 TC9225AG

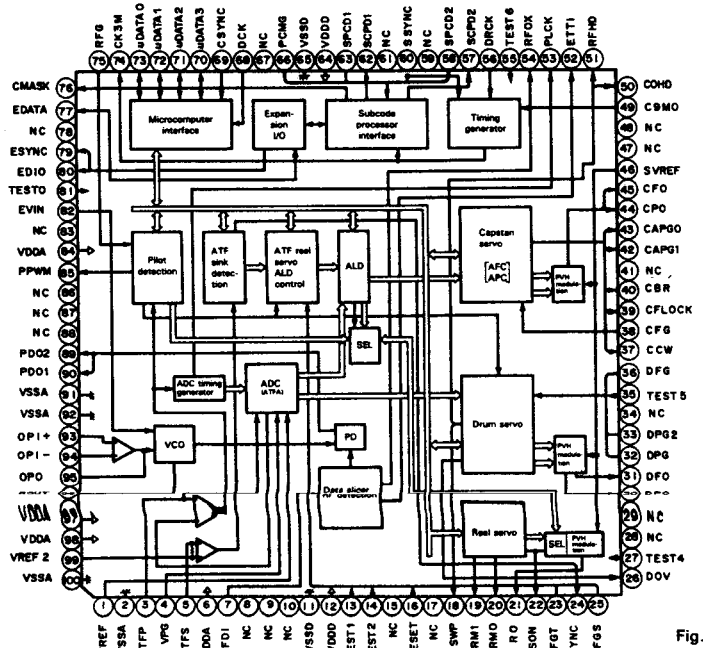
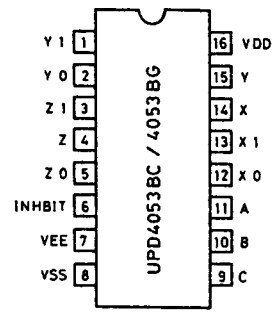


Fig. 3-11

■ IC522 UPD4053BG



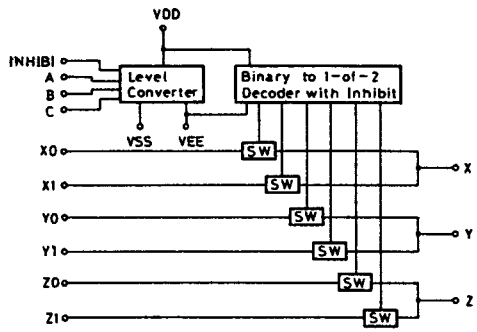
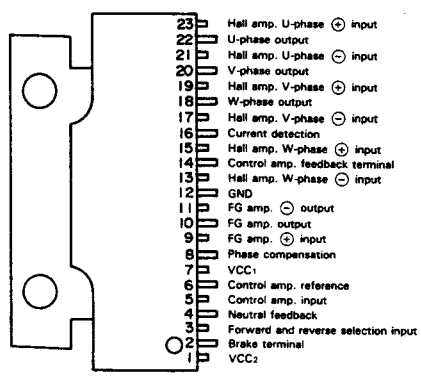
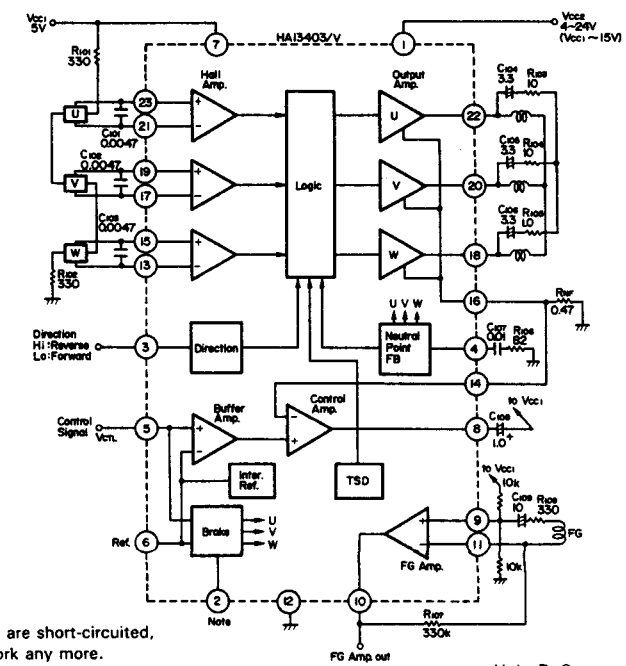


Fig. 3-12

■ IC601 HA13403V



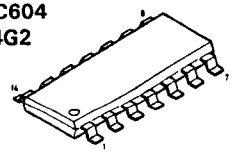


Note: When the pins ① and ② are short-circuited, the brake circuit will not work any more.

Fig. 3-13

Unit: R: Ω
C: μF

■ IC602,IC604
UPC324G2



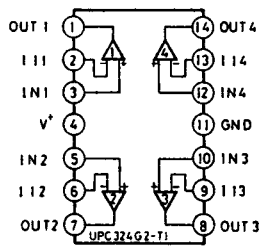


Fig. 3-14

■ IC607
BA6109

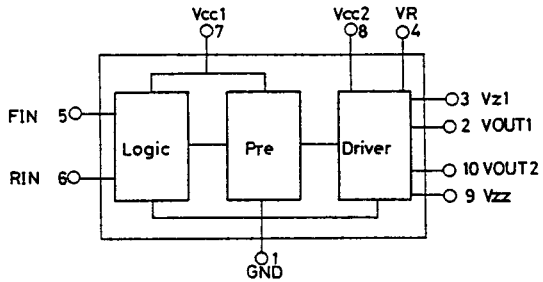


Fig. 3-15

■ IC603
UPC339G2

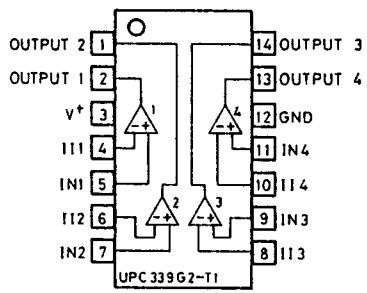


Fig. 3-16

■ IC605
UPD4066BG

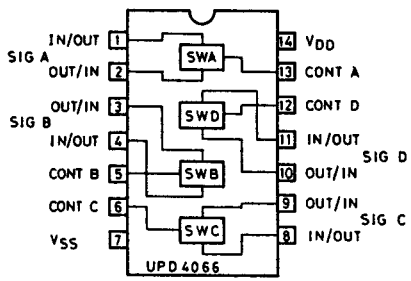
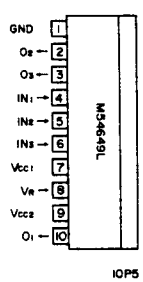


Fig. 3-17

■ IC606, IC552
M54649L



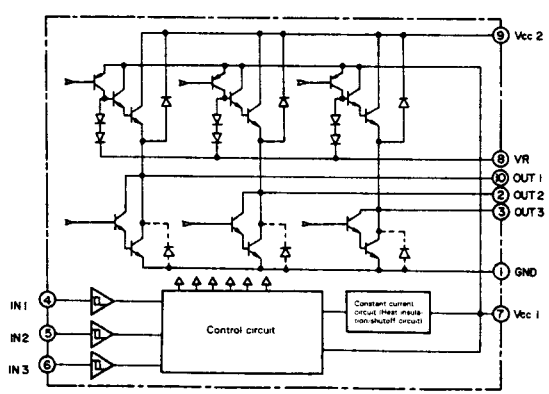


Fig. 3-18

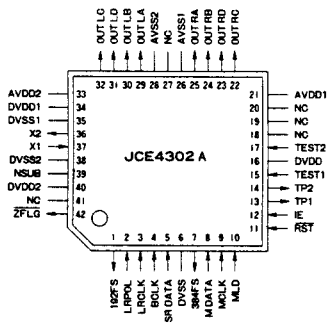
XD-Z505 B/C/E/G/J

■ JCE4302A: (IC341) .... Digital filter and D/A converter

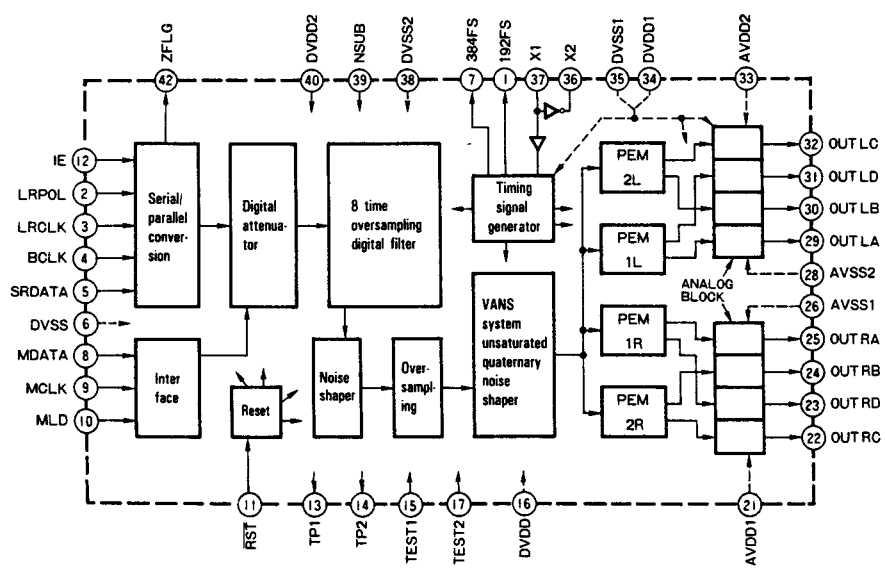
1. General description

This JCE 4302A is a D/A converter IC with a precise linearity up to a micro level and has builtin 8 time oversampling digital filter, noise shaping type (1 bit action type) DAC, etc. The high resolution data from digital filter is further oversampled, and bit compressed while suppressing the requantification noise in the audio band zone to a negligible level by the unsaturated type quaternary noise shaper according to the VANS (Victor Advanced Noise Shaper) system. When compared with the conventional PEM(Pulse Edge Modulation) system, the resolution has been increased, and the output is changed to pulse waves (A, B, C and D) variable with crystal clock, and converted directly to analog output by the PEM (Pulse Edge Modulation) system free from high frequency distortion. By the 1 bit action of pulse waves (1 or 0 in the direction of amplitude), the mismatching distortion (zero cross distortion), glitch distortion and other components (which have occurred in the conventional rudder type DAC) hazardous to the sound quality can principally be eliminated. Thereby, an accurate linearity can be obtained up to a fine (micro) level.
The pulse waves A, B, C and D are converted into analog signal/s with a fidelity to the input synthesized from outside.

2. External view



3. Internal block diagram



4. Terminal functions

Terminal No.	Terminal Name	I/O	Outline of functions
1	192FS	O	192 fs (8.4672 MHz) clock
2	LRPOL	I	Selection of the polarity of LRCLK. SRDATA is Lch where LRCLK = "H" at the time of "H".
3	LRCLK	I	Lch-Rch select signal of SRDATA.
4	BCLK	I	SRDATA shift clock (rising/startup)
5	SRDATA	I	Serial data
6	DVSS	–	Digital system gland
7	384FS	O	384 fs (16.9344 MHz) clock
8	MDATA	I	attenuator data
9	MCLK	I	MDATA shift clock (rising)
10	MLD	I	MDATA latch signal (rising)
11	$\overline{RST}$	I	Reset signal. Resetting with "L".
12	IE	I	Selection of SRDATA format. Normally, it is set to "L".
13	TPI	O	Test output of digital filter section
14	TP2	O	
15	TEST1	I	Test input of digital filter section
16	DVDD	–	For fixing internal column potential.
17	TEST2	I	Digital filter section test input
18	NC		
19	NC		
20	NC		
21	AVDD1	–	Analog system (Rch) power supply
22	OUT RC	O	Rch output C
23	OUT RD	O	Rch output D
24	OUT RB	O	Rch output B
25	OUT RA	O	Rch output A
26	AVSS1	–	Analog system (Rch) gland
27	NC		
28	AVSS2	–	Analog system (Lch) gland
29	OUT LA	O	Lch output A
30	OUT LB	O	Lch output B
31	OUT LD	O	Lch output D
32	OUT LC	O	Lch output C
33	AVDD2	–	Analog system (Lch) power supply
34	DVDD1	–	Digital system (clock and timing generator section) power supply
35	DVSS1	–	Digital system (clock and timing generator section) gland
36	X2	O	X'tal oscillation
37	X1	I	... 384 fs (16.9344 MHz)
38	DVSS2	–	Digital system gland
39	NSUB	–	For fixing internal NSUB potential
40	DVDD2	–	Digital system power supply
41	NC		
42	$\overline{ZFLG}$	O	Detection of "0" of input data ("L" at the time of "0")

XD-Z505 B/C/E/G/J

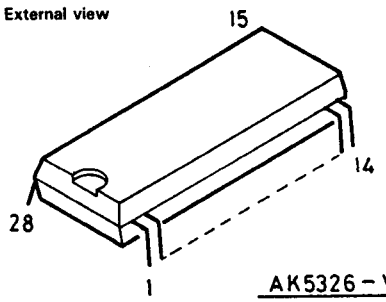
■ AK5326 (IC301) .... A/D converter

1. General descripiton

This AK5326 is an A/D conversion system compatible to the stereo digital audio system. As a 16 bit 2 channel stereo A/D conversion system, this system is designed to perform simultaneous sampling, A/D conversion, repetitive noise filtering, and serial output of left and right input channel conversion data. The output data rate is 50 kHz in maximum per channel.

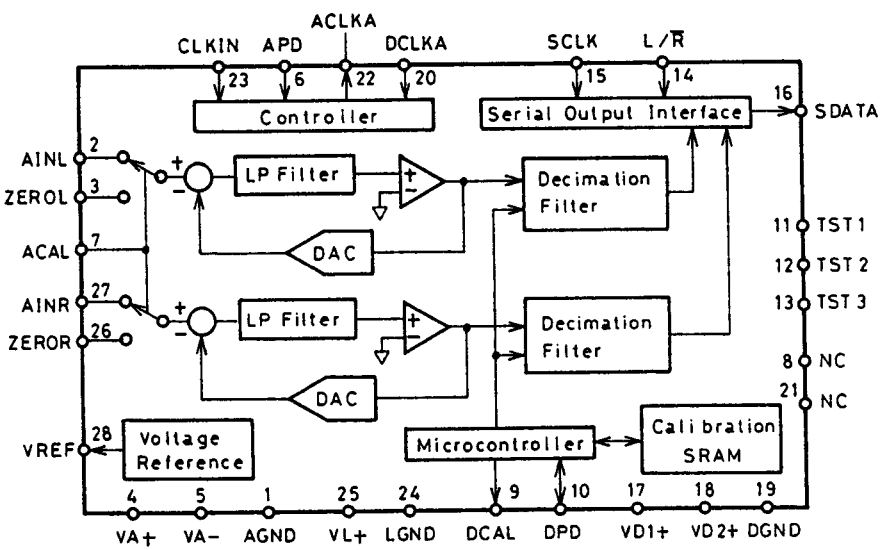
The AK5226 realized a high performance A/D conversion system using a delta and sigma modulation system. Oversampling makes it possible to drastically simplify the external cyclical noise preventive filter by means of digital filter and decimation. By sampling at 64 times the output data rate, a highly excellent dynamic characteristic of as much as S/(N + D) = 92 dB is attained in the entire band zone by means of the 3 stage digital FIR filter. The FIR filter has a pass band of 0.001 dB at linear phase and a blocking band attenuation rate of 86 dB or more.

2. External view



1. AGND	8. NC	15. SCLK	22. ACLKA
2. AINL	9. DCAL	16. SDATA	23. CLKIN
3. ZEROL	10. DPD	17. VD1 +	24. LGND
4. VA+	11. TEST 1	18. VD2 +	25. VL+
5. VA–	12. TEST 2	19. DGND	26. ZEROR
6. APD	13. TEST 3	20. DCLKA	27. AINR
7. ACAL	14. L/R	21. NC	28. VREF

3. Internal block diagram



4. Terminal functions

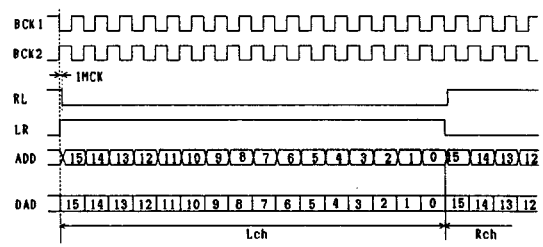
Terminal No.	Terminal Name	I/O	Outline of functions
1	AGND	–	Analog gland terminal
2	AINL	I	L channel analog input terminal. The full scale input voltage is ±3.68 V. It is recommended to connect a 0.001 μF or larger condenser between AGND.
3	ZEROL	I	L channel zero level input pin. After setting the input voltage of this terminal normally to zero level, perform calibration of the offset of L channel. Normally, this pin should be connected to the AGND pin.
4	VA+	–	Positive analog power supply: +5 V
5	VA–	–	Netative analog power supply: –5 V
6	APD	I	Analog pwer down terminal. When this terminal is at a high level, the mode is set to "POWER DOWN". Normally, this terminal is connected to the DPD pin.
7	ACAL	I	Analog calibration terminal. Normally, this terminal is connected to the DCAL terminal. When this terminal is at a high level, the L/R input channel is connected internally to the zero level input terminals. (ZERO L and ZERO R), respectively. When at a low level, this terminal is connected to the analog input terminals (AIN L and AIN R).
8	NC	–	Unconnected terminal
9	DCAL	I	Digital calibration terminal. Normally, the signal from this terminal is used as an input signal to the ACAL terminal. When "POWER DOWN" signal has been input to the DPD pin, this terminal rises immediately, and is set to the low level after a period of 4096 L/R (about 85 ms at 6.144 Hz) from coming-down of DPD pin. Then, the end of offset calibration is indicated. In the case of performing system calibration, moreover, this terminal can be used to input the channel selection signal from the external MUX.
10	DPD	I	Digital "POWER DOWN" terminal When this terminal is at a high level, the mode is set to "POWER DOWN". After making of power supply, be sure to perform calibration once by inputting positive pulse to this terminal.
11	TST1	I	Test terminal connect this terminal to the DGND terminal.
12	TST2	I	
13	TST3	I	
14	L/R	I	Input channel selection terminal This terminal is used to select the channel of data being output from the SDATA terminal. When the level is high, the data of L channel is output, but when the level is low, the data of R channel is output. The clocks divided into 128 from the master clock are input from this terminal.
15	SCLK	I	Serial data output clock terminal When the clock has risen (has been started up), the output data is changed by 1 bit. Normally the data is input by dividing the master clock to 4.
16	SDATA	O	Serial data output terminal The data is output successively from MSB after complementing 2's. When SCLK has risen, one bit of data is output. Moreover, the low level data is output when 17 or more SLKs are input.
17	VD1 +		Positive digital power supply: +5 V
18	VD2 +		
19	DGND		Digital grand terminal
20	DCLKA	I	Digital system clock terminal. This terminal is connected to the ACLKA terminal.
21	NC	–	Unconnected terminal.
22	ACLKA	O	Master clock terminal. This terminal is connected to the DCLKA terminal. The clocks divided into 2 from the master clock will be output.
23	CLKIN	I	Analog system clock terminal. This clock wihich has been divided into 2 constitutes a sampling rate of delta and sigma modulator., When the clock is at 6.144 MHz, the output word rate ped channel becomes 48 kHz.
24	LGND	–	Digital gland terminal.
25	VL+	–	Digital power supply: +5 V.
26	ZEROR	I	R channel zero level input terminal. Generally, the R channel offset is calibrated after setting the input voltage of this terminal to zero level. Normally, this terminal should be connected to the AGND terminal.
27	AINR	I	R channel zero level input terminal. The full scale input voltage is ±3.68 V. It is recommended to connect 0.001 μF or larger condenser between AGND.
28	VREF	O	Reference voltage source: –3.68 V. Normally, a 6.8 μF electrolytic condenser and a ceramic condenser should be connected in parallel between AGND.

■ CF78120APH (IC401) .... Digital I/O

1. Main function of this LSI
   (1) A clock constituting a basis of the overall system is formed.
   (2) Decoding of digital input signal
   (3) Encoding of digital I/O signal
   (4) Interface between AD/DA converter and signal processing LSI
   (5) Counting of block errors
   (6) Communication with microcomputer

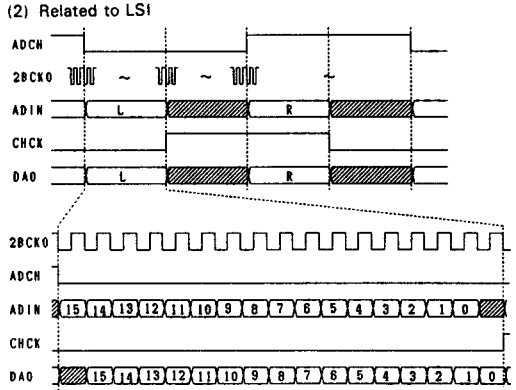
2. Main timing

(1) Related to AD and DA



ADC/DAC timing chart

(2) Related to LSI



3. Terminal functions

#	Terminal Name	I/O	Function	Connect to:
1	GND			
2	XS1	O	"OPEN" at 48 K/32 K mode, but "L" otherwise.	XTAL1
3	XI1	I	Crystal oscillation circuit for 48 K/32 K mode	"
4	XO1	O	"	"
5	GND			
6	XS2	O	"OPEN" at 44 K mode, but "L" otherwise.	XTAL2
7	X12	I		"
8	X02	O		"
9	GND			
10	MCK1	O	Master clock of DAC	DAC
11	GND			
12	MCK2	O	Master clock of DAC	NC
13	128F	O	Master clock (128Fs) for ADC	AD
14	ADD	I	ADC output date	"
15	BCK2	O	ADC bit clock	"
16	LR	O	ADC channel clock (Fs)	"
17				
18	LPF	O	DAC action mode ("L" at 32 K)	DAC
19	DAD	O	DAC data	"
20	BCK1	O	DAC bit clock (32Fs)	"
21	RL	O	DAC channel clock (Fs)	"
22	384F	O	DAC master clock (384 Fs)	NC
23	DEMP	O	De-emphasis signal	DAC
24	INVI	I	NOT gate input	(Not used)
25	INVO	O	NOT gate output	NC
26	MOD0	I	Test terminal	+5
27	MOD1	I	"	"
28	MOD2	I	"	"
29	MOD3	I	"	"
30	TSP1	O	"	"
31	TX	O	Digital output	OUTPUT
32	$\overline{MCLR}$	I	Reset at "L"	RESET
33	VCC			
34	RX1	I	Digital input (optical)	INPUT
35	RX0	I	Digital input (coaxial)	INPUT
36	VCE	O	Signal selecting RX0 and RX1	MN
37	MN	I	Signal delaying VCE by as much as 60 n	VCE
38	METCLK	I	Level data communication clock for meter	D. μCOM
39	METEN	I	Level data communication 'enable' signal for meter	"
40	METD	O	Level data communication data for meter	"
41	MSCLK	I	Clock for mechanical control communication data	MECHACON
42	MSDATA	I	Input data for mechanical control communication data	"
43	SMDATA	O	Output data for mechanical control communication data	"
44	MSEN	I	'Enable' for mechanical control communication data	"
45	PMUTE	I	Muting of audio replay (reproduction) data	"
46	COHD	I	Signal processing frame identification signal	TC9225AG
47	SSYNC	I	Synchronized communication signal between signal processing LSIs	"
48	SPCD1	I	Communication data between signal processing LSIs	"
49	DAO	I	Reproduced data from signal processing LSI	TC9226F
50	2BCKO	I	Bit clock for DAO (98 Fs or 32 Fs)	"
51	CHCK	I	Channel clock DAO (Fs)	"
52	ADIM	O	Recording data to signal processing LSI	"
53	ADCH	I	Channel clock for ADIN (Fs)	"
54	CK3M	I	Clock for SSYNC (3.136 MHz)	"
55	MONION	I	Inversion and non-inversion control of ADCH (Inversed at "H" and not inversed at "L")	MECHACON
56	GND			
57	MI	O	Test terminal	
58	SE	O	Test terminal	
59	SK	I	PLL action setting ('L')	
60	SI	I	PLL action setting ('L')	
61	CO	I	PLL action setting ('H')	
62	UNLOCK	O	Unlocking of digital input PLL	
63	VCOI	I	VCO clock input	VCOOUT
64	VCOEN	O	VCO stop signal (Oscillated at 'L')	INHIBIT
65	AGND			
66	INHIBIT	I	VCI stop signal (Oscillated at 'L')	VCOEN
67	VCOOUT	O	VCO clock output	VCOI
68	C1	AN	VCO oscillation frequency setting	68pF
69	R2	AN	VCO oscillation frequency setting	220kΩ
70	VCOin	AN	VCO control voltage	LPF
71	R1	AN	VCO oscillation frequency setting	3.3kΩ
72	AVCC			
73	VCC			
74				
75	PD2	3S	ADCH and RL phase comparator output	LPF
76	PD1	3S	Phase comparator output of digital input PLL	"
77	GND			
78	DCSR	O	Signal extracting MSB from ADD (R)	ADC
79	DCSL	O	Signal extracting MSB from ADD (L)	"
80	VCC			+5

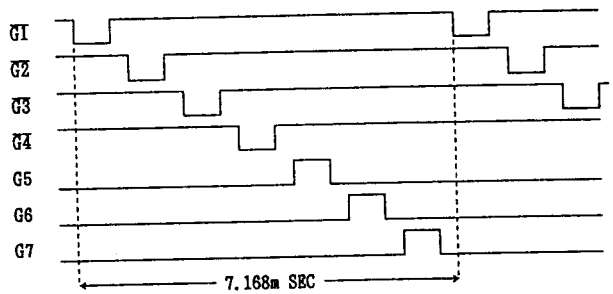
■ HD614023SA55 (IC801) .... Display Microcomputer

1. Functions of display microcomputer
   (1) Key scanning, decoding of remote control input, computer link communication, and sending of the outputs over to mechanical controller.
   (2) Receiving of display data from mechanical controller and display on the FL tube.
   (3) Receiving of level data from digital I/O•IC, and display on meter after executing peak recovery and digital peak processing.

2. Processing Timing

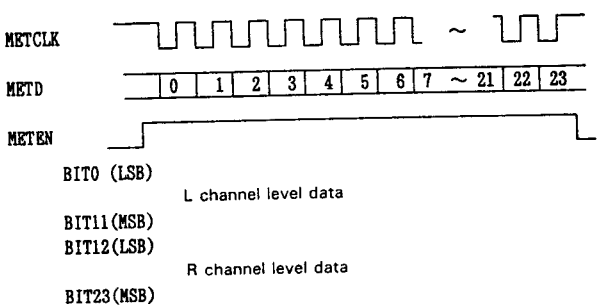
   (1) FL display timing

   G1 ~ G4 and G5 ~ G7 are under dynamic scanning respectively by 7 grids of negative logic and those of positive logic.



   (2) Digital I/O•IC communication timing

   METD, METEN and METCLK are the communication lines for receiving meter display data through communication with the digital I/O•IC and have the following formats. Meanwhile, the communication period is about 7 msec.



   (3) Communication timing between microcomputers

   DMDATA, MDDATA and MDCLK are the communication lines between the mechanical controllers, and have the communication formats with one set of data consisting of 1 bite (8 bits) and 15 bites per about 2 msec.

3. Terminal functions

#	Terminal Name	I/O	Function	Connect to:
1	A5	O ↓	Anode output of FL tube	FL
2	A6	O ↓	〃	〃
3	A7	O ↓	〃	〃
4	A8	O ↓	〃	〃
5	A9	O ↓	〃	〃
6	A10	O ↓	〃	〃
7	A11	O ↓	〃	〃
8	A12	O ↓	〃	〃
9	A13	O ↓	〃	〃
10	A14	O ↓	〃	〃
11	A15	O ↓	〃	〃
12	A16	O ↓	〃	〃
13	A17	O ↓	〃	〃
14	A18	O ↓	〃	〃
15	A19	O ↓	〃	〃
16	A20	O ↓	〃	〃
17	A21	O ↓	〃	〃
18	NC	I		
19	V_{disp}	I	Common for pulldown resistor (– 24 V)	Power supply
20	$\overline{TPLY}$	I ↑	Timer reproduction swtich (ON at 'L')	SW
21	$\overline{TREC}$	I ↑	Timer recording switch (ON at 'L')	〃
22	COA/$\overline{OPT}$	I ↑	Select switch to and from coaxial and optical	〃
23	REM	I	Remote controller	Remocon
24	$\overline{STD}$/LONG	I ↑	Mode select switch at the time of recording mode	SW
25	$\overline{ANA}$/DIG	I ↑	Recording mode select switch (Analog at 'L')	〃
26	NC	I ↑		
27	METD	I	Meter data from digital I/O•IC	SCA
28	NC	I ↑		
29	METEN	O ↑	Set to 'H' when communicating with digital I/O•IC.	〃
30	METCLK	O ↑	Communication clock with digital I/O•IC	〃
31	NC	I ↑		
32	VCC			
33	$\overline{MDCLK}$	I ↑	Mechanical control communication shift clock input	MECHACON
34	MDDATA	I ↑	Mechanical control communication input	〃
35	DMDATA	O	Mechanical control communication output	〃
36	DCSI	O ↑	Computer link input	DCS
37	DCSO	O ↑	Computer link output	DCS
38	NC	I ↑		
39	NC	I ↑		
40	NC	I ↑		
41	KO0	O ↑	Key scan output	KEY
42	KO1	O ↑	〃	〃
43	KO2	O ↑	〃	〃
44	KO3	O ↑	〃	〃
45	KI0	I ↑	Key scan input	〃
46	KI1	I ↑	〃	〃
47	KI2	I ↑	〃	〃
48	KI3	I ↑	〃	〃
49	$\overline{RESET}$	I	Resetting terminal	
50	$\overline{TEST}$	I	Fixed at 'H'	
51	OSC1	I	Ceramic oscillator (4 MHz)	Oscillator
52	OSC2	O	〃	〃
53	GND			
54	$\overline{G1}$	O	Grid output of FL tube (High tension resistant buffer is installed outside)	FL
55	$\overline{G2}$	O	〃	〃
56	$\overline{G3}$	O	〃	〃
57	$\overline{G4}$	O	〃	〃
58	G5	O ↓	Grid output of FL tube	〃
59	G6	O ↓	〃	〃
60	G7	O ↓	〃	〃
61	A1	O ↓	Anode output of FL tube	〃
62	A2	O ↓	〃	〃
63	A3	O ↓	〃	〃
64	A4	O ↓	〃	〃

*1: The I/O unit denoted by ↑ refers to the port with pullup resistor and that denoted by ↓ referes to that with pulldown resistor.

XD-Z505 B/C/E/G/J

■ UPD75112CW-075 (IC551) .... Mechanical control microcomputer

1. Mechanical control functions

(1) The mechanical control, microcomputer is designed to control the overall system based on the key data from the display microcomputer.

(2) The following items are performed through communication with the signal processing LSI:
- ① Mode setting
- ② Servo control
- ③ Recording and replay (reproduction) of subcode

(3) The following items are executed through communication with the digital I/O-IC:
- ① System mode setting
- ② Digital I/O control

(4) Mechanical action control

#	Terminal Name	I/O	Function	Connect to:
1	TREEL	I	Takeup side reel pulse (8 pulses per revolution)	REEL SENS.
2	SREEL	I	Supply side reel pulse (8 pulses per revolution)	〃
3	SWP	I	Head identification signal	TC9225AG
4	COHD	I	LSI synchronizing signal	TC9225AG
5	TEST2	AN	Automatic measurement test mode setting terminal (Normally at 'H')	
6	MPOS	AN	Mechanical mode detection switch input	SW
7	EOT	AN	Judging EOT (End of Tape) at 1 V or less.	EOT SENS.
8	BOT	AN	Judging BOT (Begin of Tape at 1 V or less.	BOT SEND.
9	POFF	I	Set to 'L' instantaneously at the time of POWER OFF	Power circuit
10	CFG	I	Capstan FG (for detecting position after and during recording)	CAPSTAN SV
11				
12				
13				
14				
15	DMDATA	I	Communication data from display microcomputer	DISP. μCOM
16	MDDATA	O	Communication data to display microcomputer	〃
17	MDCLK	O	Communication clock to display microcomputer	〃
18				
19	$\overline{\text{TEST1}}$	I ↑	It becomes possible to display the error rate at the time of 'L'.	
20	$\overline{\text{TEST0}}$	I ↑	It becomes possible to reproduce MOT-12 and other irregular (abnormal) signals at the time of 'L'.	
21	ID4	I ↑	Set to 'H' at the time of 'L'.	MECHA-SW
22	$\overline{\text{WP}}$	I ↑	Recording is impossible at the time of 'L'.	MECHA-SW
23	$\overline{\text{EEND}}$	I ↑	End of tray ejection at the time of 'L'	TRAY-SW
24	$\overline{\text{LEND}}$	I ↑	End of tray loading at the time of 'L'	TRAY-SW
25	$\overline{\text{CASSW}}$	I ↑	Cassette loaded at the time of 'L'	MECHA-SW
26	KICK-EN	I ↑	Detecting entry of ATF into dummy lock at the time of "LP - PLAY"	SERVO
27	MTC	O	Control of CAM (ACTUATOR) MOTOR and TRAY MOTOR.	MOTOR DRIVE
28	MTB	O	〃	〃
29	MTA	O	〃	〃
30	CAS/CAM	O	〃	〃
31	NC			+5
32	VDD			+5
33	MSCLK	O	Communication clock to digital I/O-IC	DIGITAL IO
34	MSDATA	O	Data to digital I/O-IC	〃
35	SMDATA	I	Data from digital I/O-IC	〃
36	MSEN	O	Communication enable signal with digital I/O-IC	〃
37	FPSEL	O	This terminal is set to 'L' during 1.5 turns of drum at the time of starting FF/REW.	SERVO
38	MONION	O	This terminal is set to 'H' during reproduction (replay) under recording or LP model.	DIGITAL IO
39	AMUTE	O	Muting of audio signal	AUDIO
40	DMUTE	O	Muting of digital out (output)	DIGITAL IO
41		I		
42		I		
43		I		
44		I		
45	RESET	I	Resetting at 'L'.	RESET
46	X2	I		
47	X1	O		
48	ATF-KICK	O	Kicking to 'H' after detecting dummy lock with KICK-EN	
49	$\overline{\text{FF}}$	O	Set to 'L' when in the direction of FF.	
50	$\overline{\text{RLSV}}$	O	Set to 'L' at the time of high speed search (FF/REW)	
51	$\overline{\text{RLONSH}}$	O	Set to 'L' for 80 msec. after rising of TREEL pulse	SERVO
52	$\overline{\text{CAPDIR}}$	O	Rotating direction of capstan motor (forward at 'L')	〃
53	$\overline{\text{CAPON}}$	O	The capstan motor is rotated at 'L'.	〃
54	SOLON	O	The brake solenoid is pulled at 'L'.	〃
55	DRVCTL	O	The power supply voltage to various motor drivers is controlled.	Power supply circuit
56				
57				
58	CSYNC	O	Set to 'L' when command is sent at the time of communication with TC9225AG.	TC9225AG
59	DCK	O	Communication clock with signal processing LSI (TC9225AG).	〃
60	μDATA3	I/O	〃	〃
61	μDATA2	I/O	〃	〃
62	μDATA1	I/O	〃	〃
63	μDATA0	I/O	〃	〃
64	Vss			GND

4 Board Layout

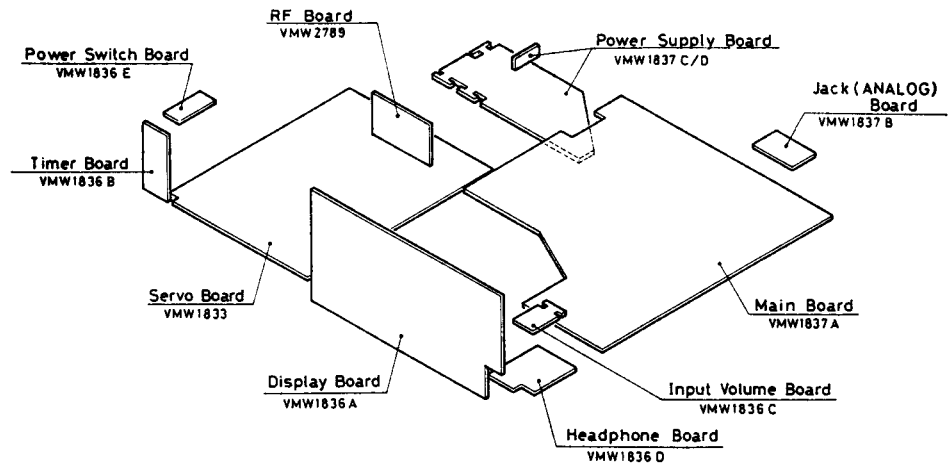


Fig. 4-1

5 Wiring Connections

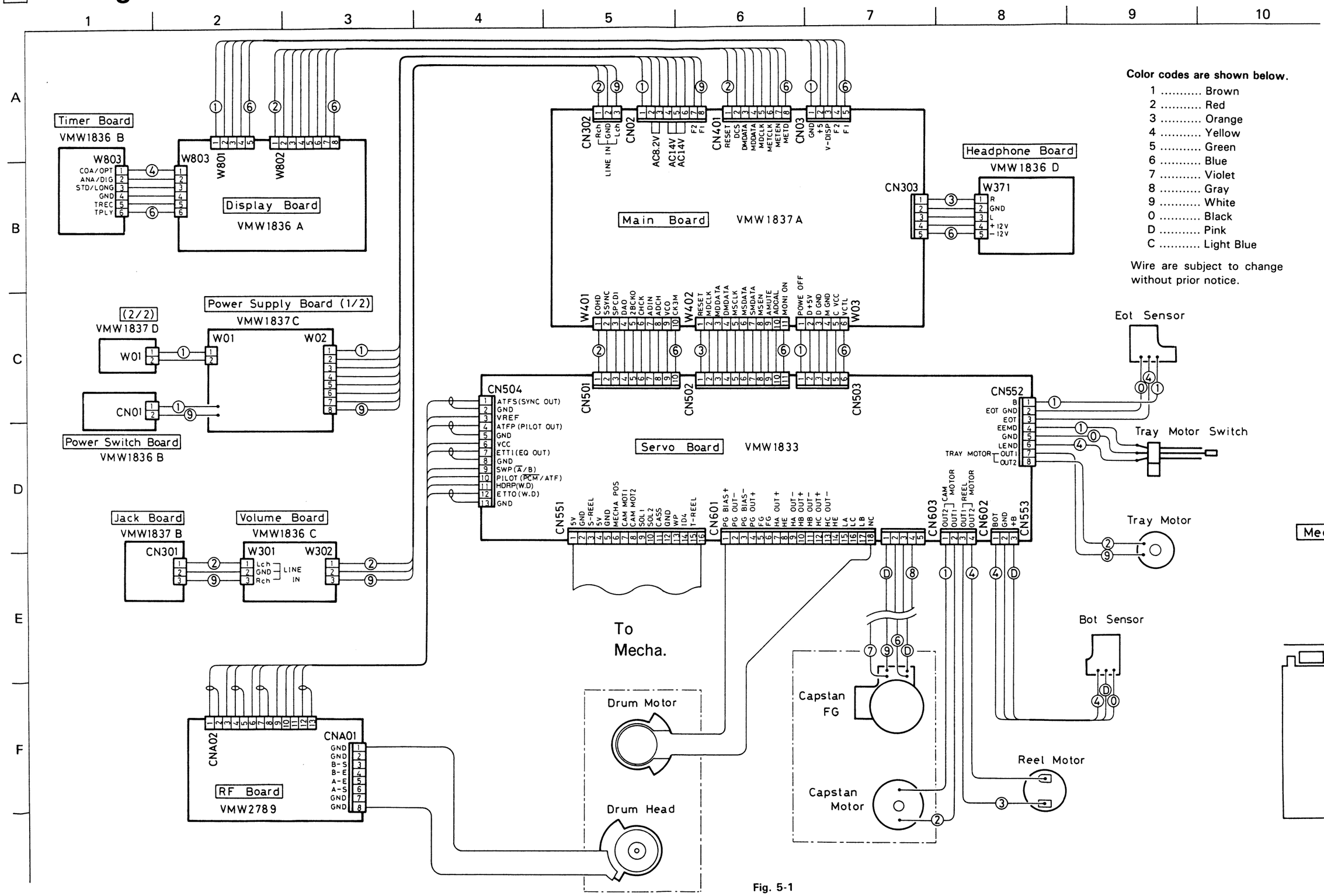


Fig. 5-1

Color codes are shown below.

1 ..... Brown
2 ..... Red
3 ..... Orange
4 ..... Yellow
5 ..... Green
6 ..... Blue
7 ..... Violet
8 ..... Gray
9 ..... White
0 ..... Black
D ..... Pink
C ..... Light Blue

Wire are subject to change without prior notice.

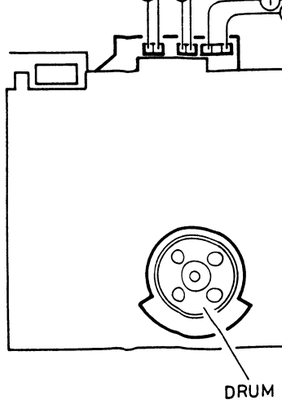


Fig. 5-4

■ B/E Version Only

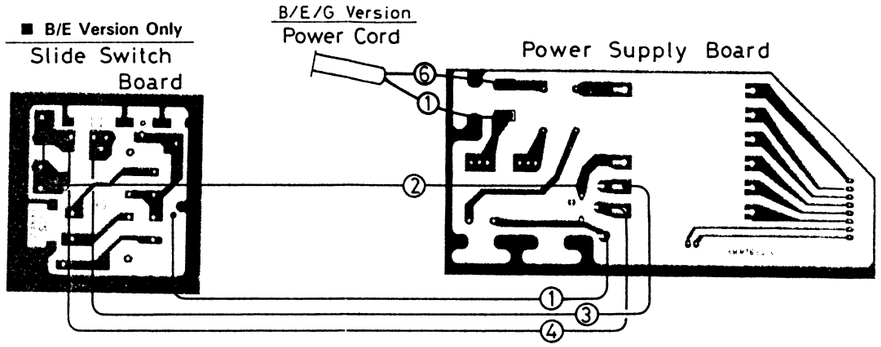


Fig. 5-2

■ C/J Version

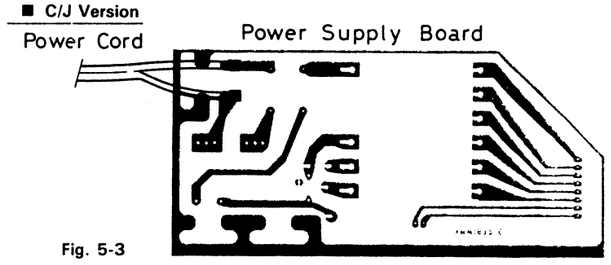


Fig. 5-3

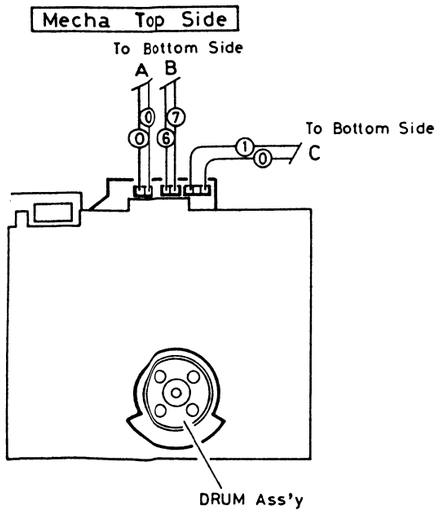


Fig. 5-4

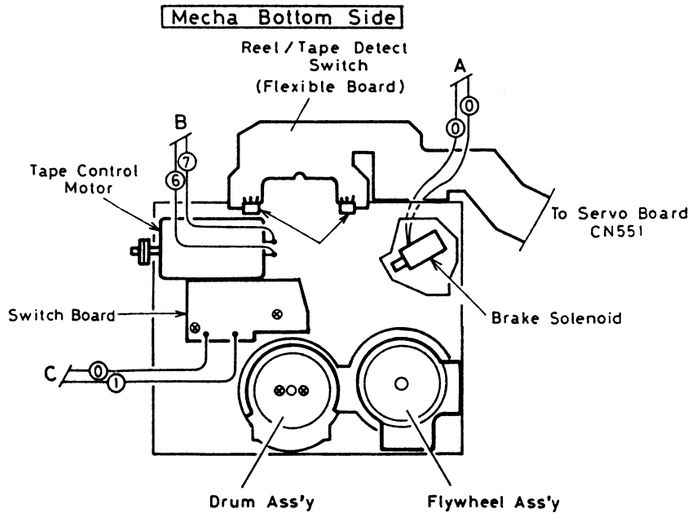


Fig. 5-5

6 Block Diagram

■ System Block Diagram

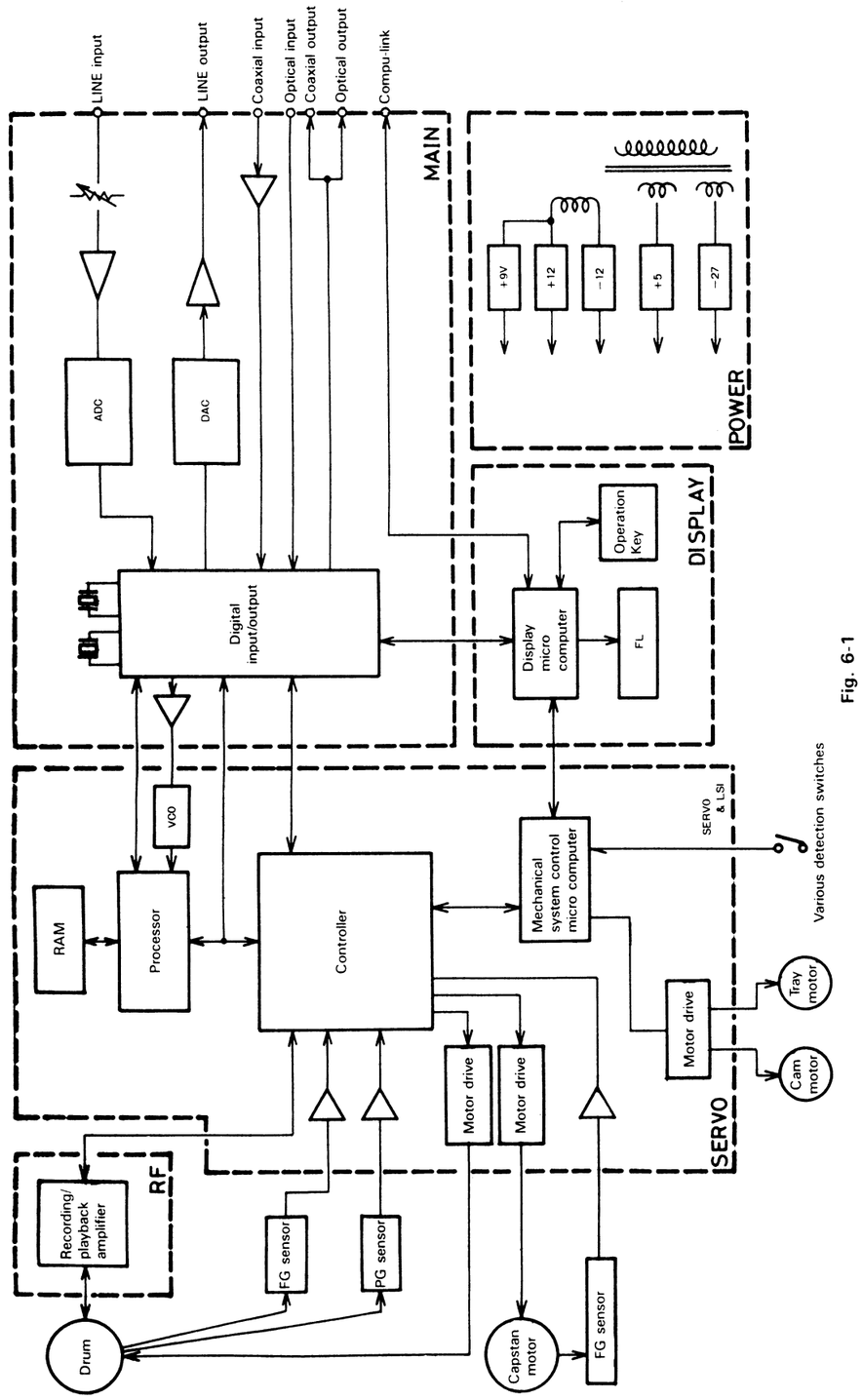


Fig. 6-1

■ Circuit Diagram

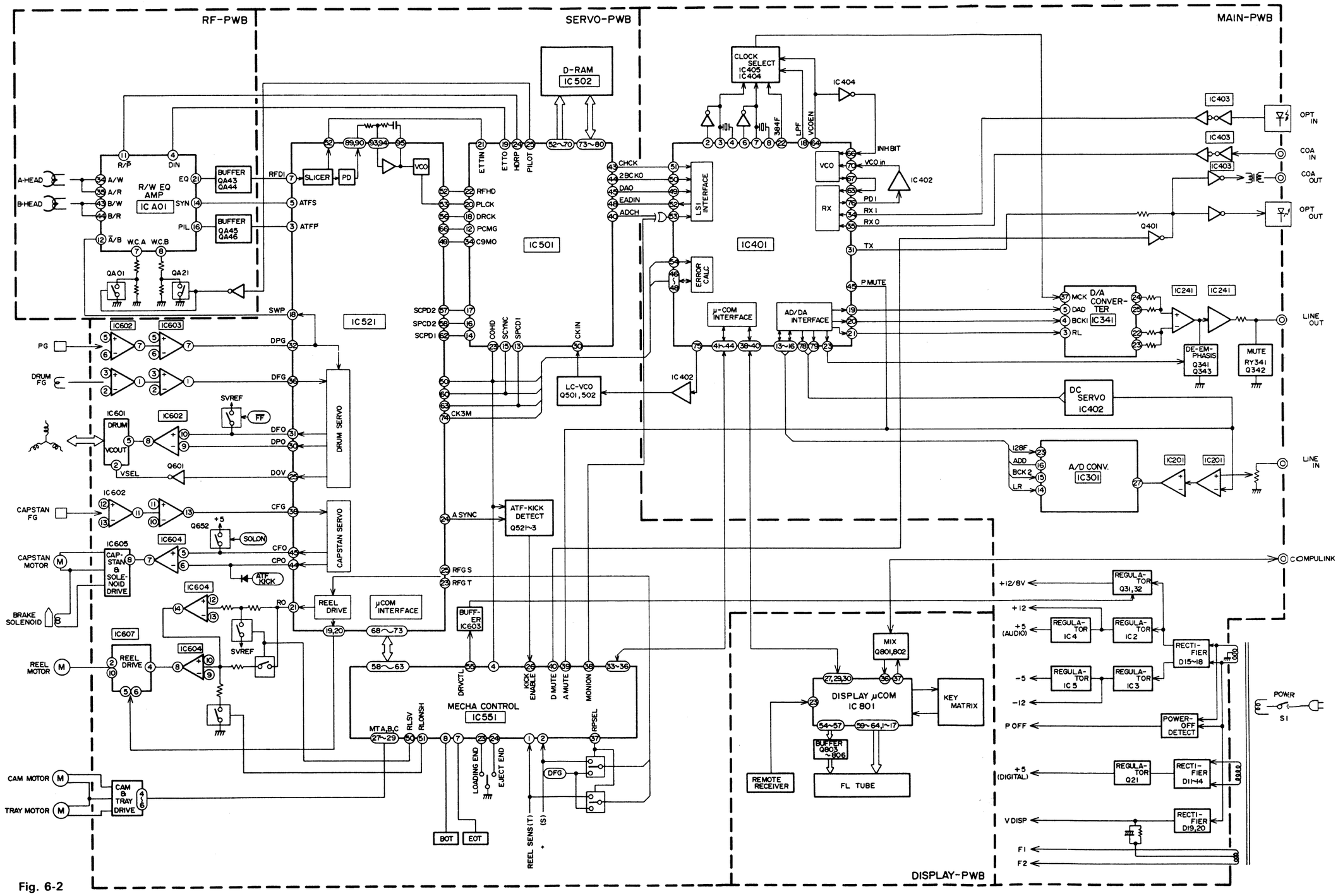


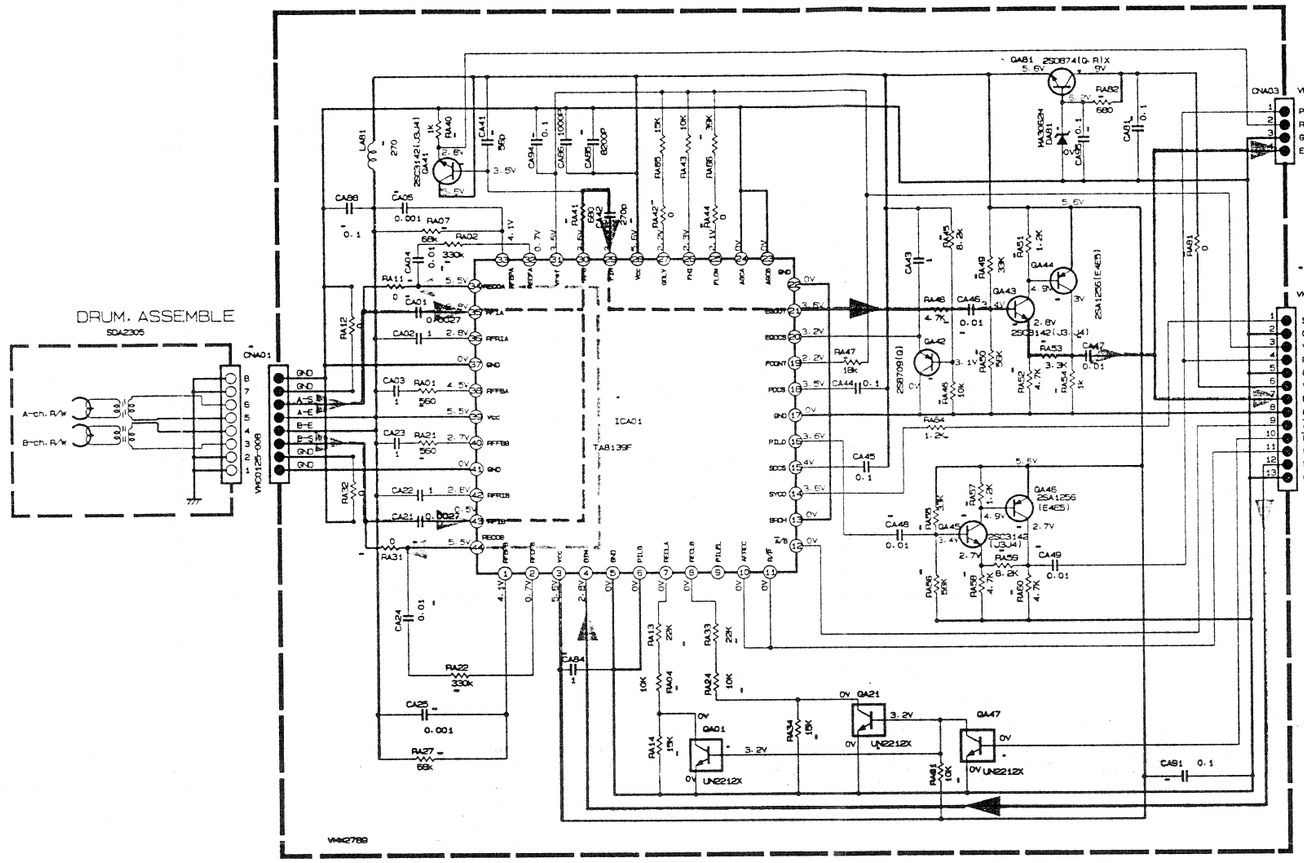
Fig. 6-2

7 Standard Schematic Diagram and Location of P.C. Board Parts

1 2 3 4 5 6 7 8 9 10

A B C D E F

■ RF Circuit/RF Board



NOTES: 1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
CONDITION — STOP MODE
2. UNLESS OTHERWISE SPECIFIED
ALL RESISTORS ARE 1/10W ±5% METAL GLAZE RESISTOR.
ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR.
ALL RESISTANCE VALUES ARE IN OHM(Ω).
ALL CAPACITANCE VALUES ARE IN μF(P=pF).

UN2212X = 22k / 22k

Blue line shows the signal at playbak.
Red line shows the signal at recording.
+B Line.

RF Board Ass'y Unit

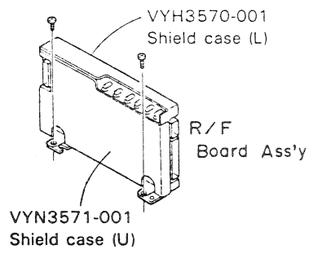
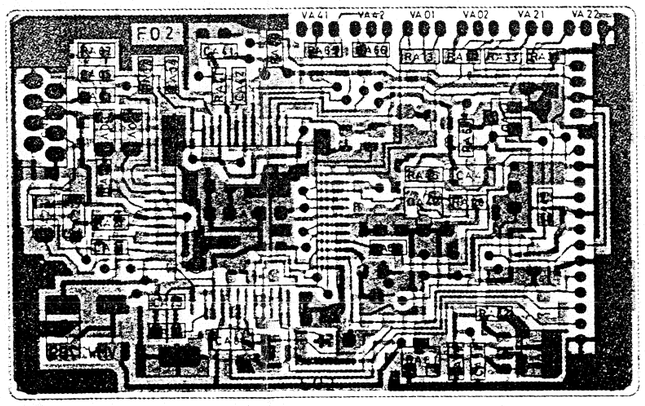


Fig. 7-1

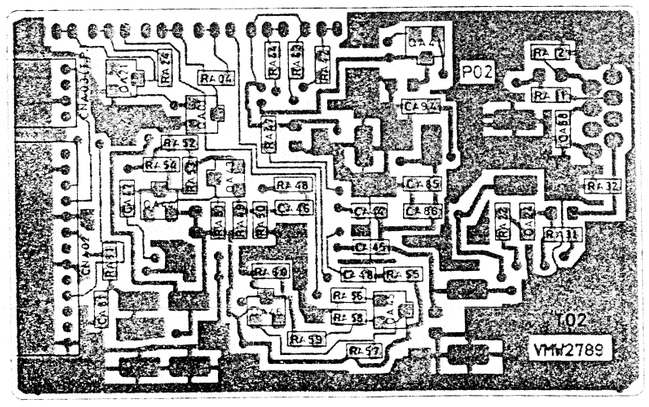
(Top side)



☐ Chip parts

Fig. 7-2

(Bottom side)



☐ Chip parts

Fig. 7-3

■ Display (FL) Circuit

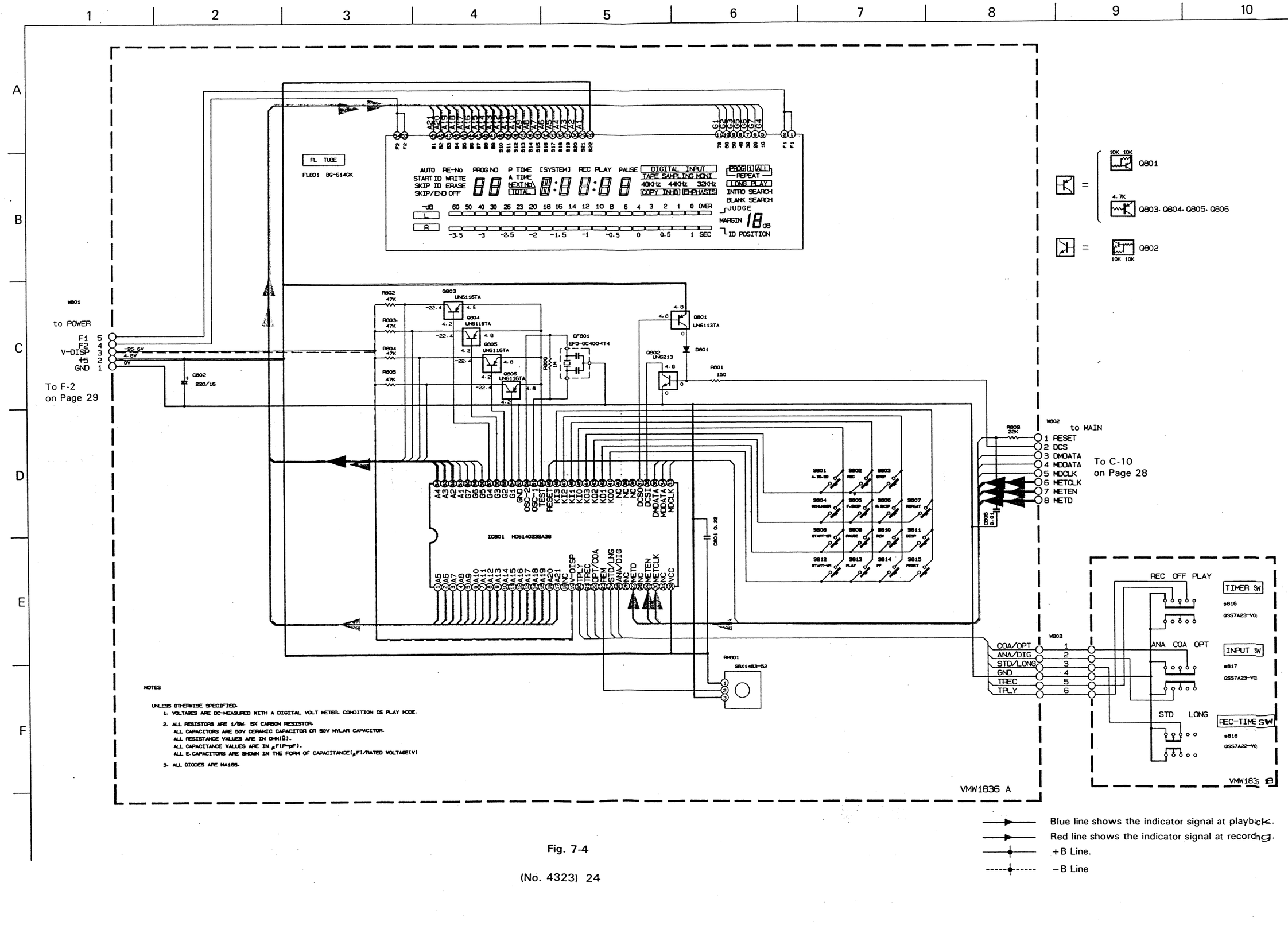


Fig. 7-4

(Top side)

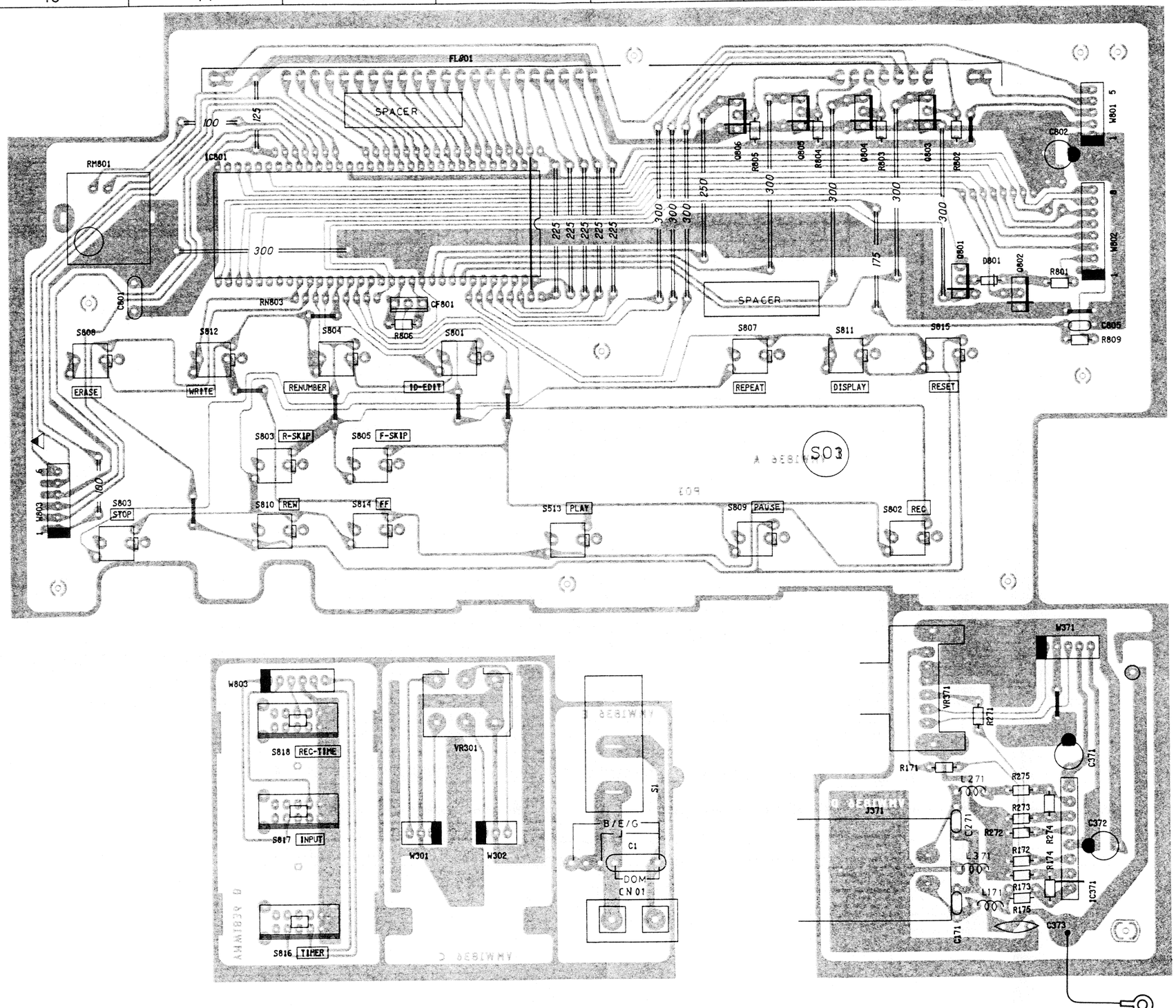
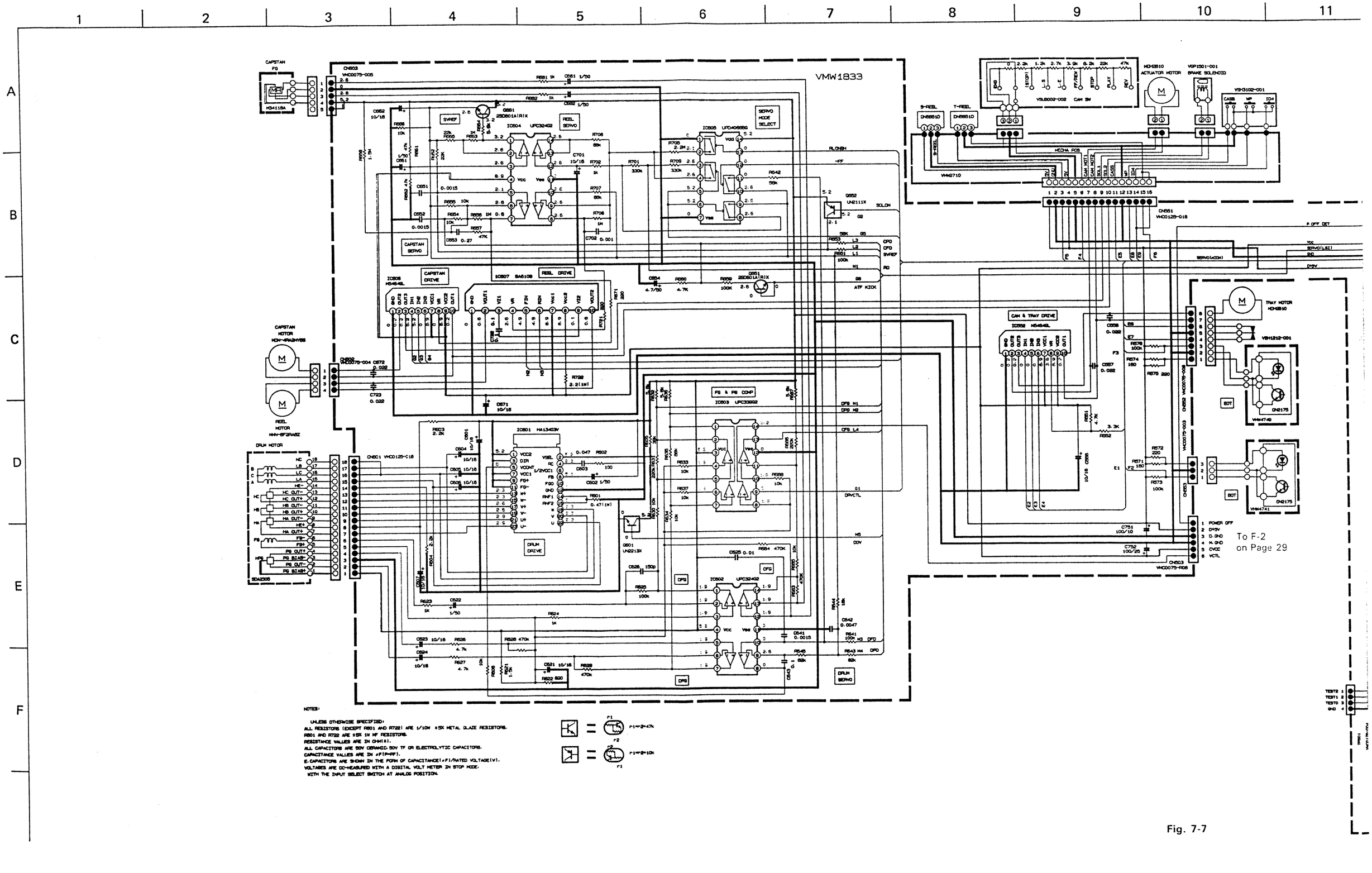


Fig. 7-6

■ Servo Circuit

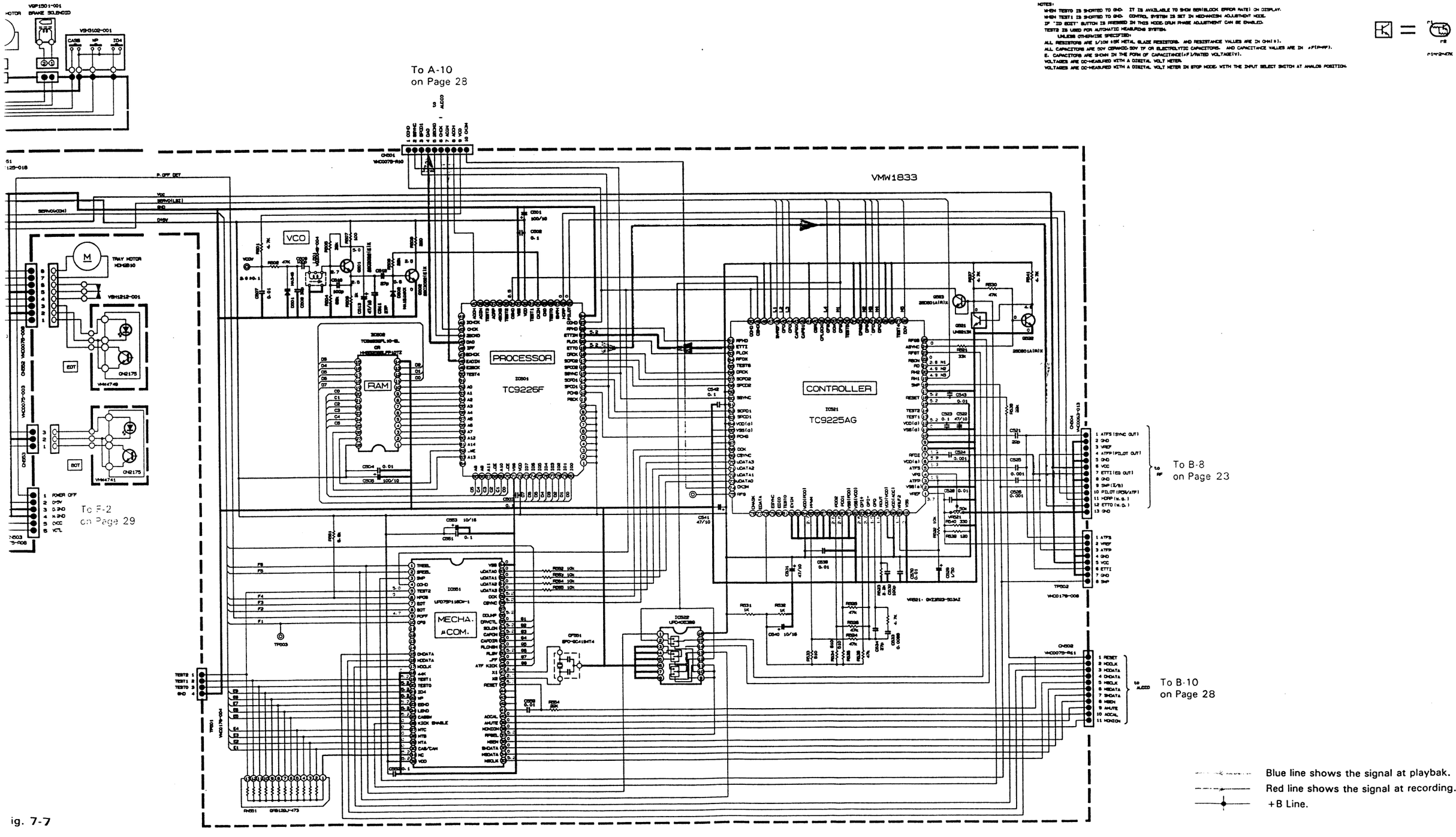


NOTES:

UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS (EXCEPT R801 AND R722) ARE 1/10W ±5% METAL GLAZE RESISTORS.
R801 AND R722 ARE 1W ±5% IN MF RESISTORS.
RESISTANCE VALUES ARE IN OHM(Ω).
ALL CAPACITORS ARE 50V CERAMIC 50V TF OR ELECTROLYTIC CAPACITORS.
CAPACITANCE VALUES ARE IN μF(P=PF).
E-CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(μF)/RATED VOLTAGE(V).
VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER IN STOP MODE.
WITH THE INPUT SELECT SWITCH AT ANALOG POSITION.

Fig. 7-7

10 11 12 13 14 15 16 17 18 19 20


VMW1833
PROCESSOR
IC501
TC9226F
CONTROLLER
IC521
TC9225AG
RAM
VCO
MECHA. μCOM.
IC551
UPD75P116CH-1
IC522
UPD40E386
TRAY MOTOR
VBH1212-001
VBH4748
VBH4741
VBP1501-001
BRAKE SOLENOID
VBH3102-001
To A-10
on Page 28
To F-2
on Page 29
To B-8
on Page 23
To B-10
on Page 28
P. OFF DET
SERVO(CCM)
DHSV
VCC
SERVO(LMI)
GND
VCOV
TRAY MOTOR
M
EOT
POWER OFF
DHSV
SCLK
SDATA
XLAT
VCC
GND
VDD
SENSE
SBSY
SCOR
SFSY
SQCK
MUTE
XRST
XTAI
XTAO
SCSY
SCDT
SCCK
SBCK
SBDT
SQSY
SUBQ
SBSO
SCEX
SCSO
SMUTE
SPDIF
SPDO
SPDI
SPDO
SPDI
SPDO
SPDI

■ Servo Board

(Bottom side)

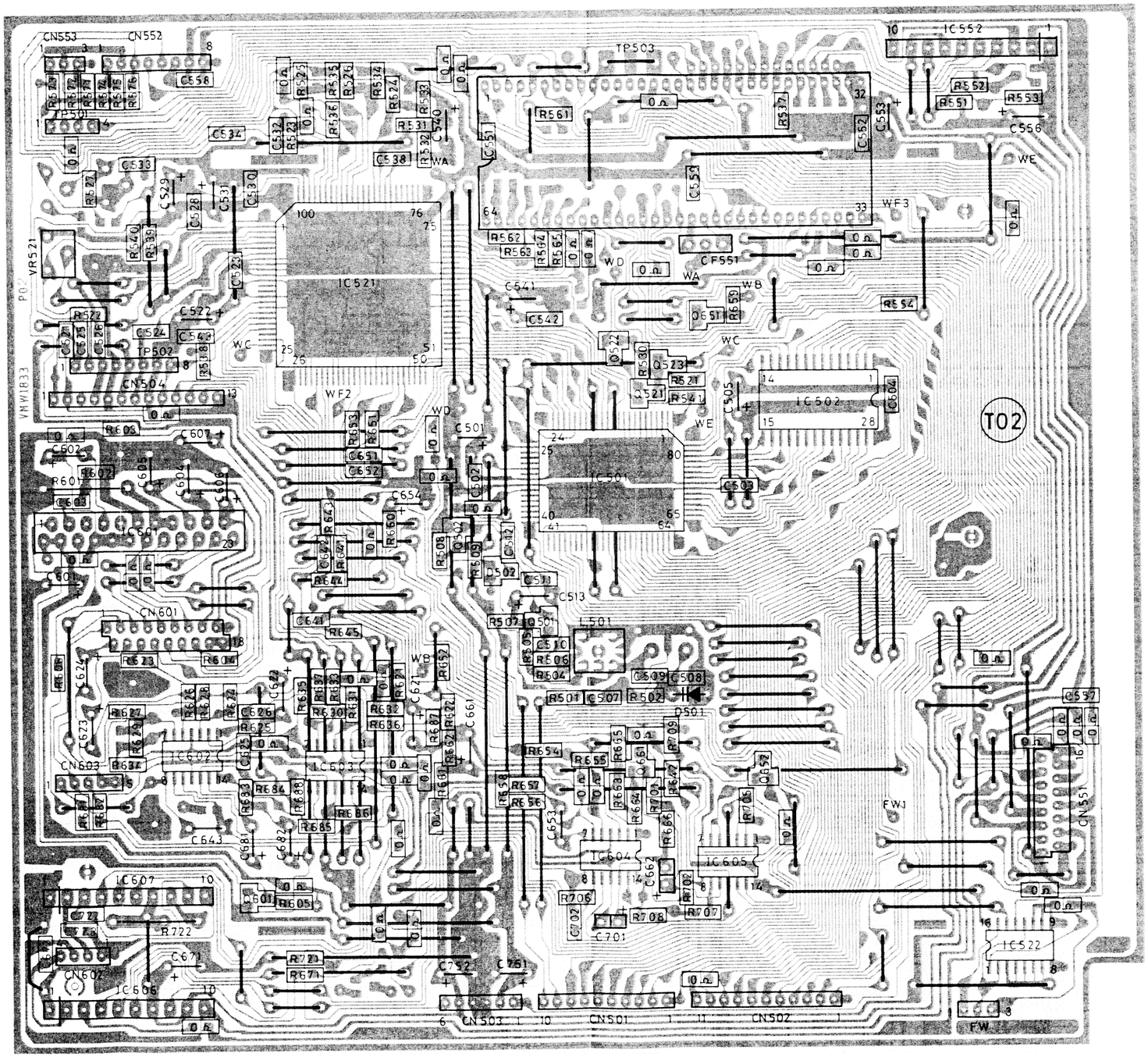


Fig. 7-8

12 13 14 15 16 17 18 19 20

(Top side)

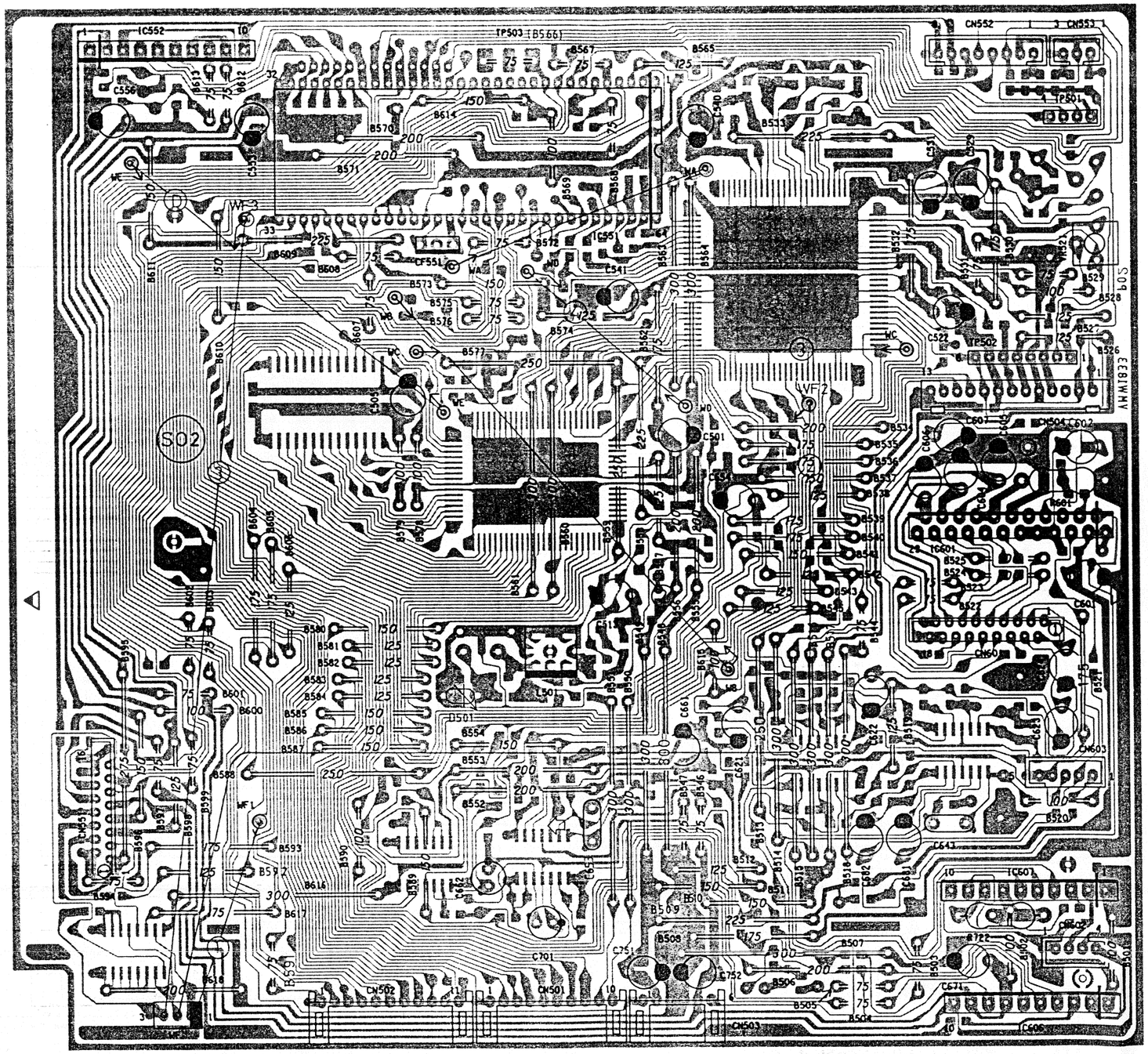


Fig. 7-9

■ Sensor Board

(EOT Board)

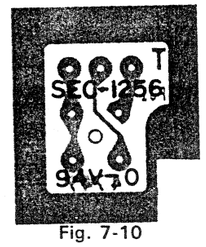


Fig. 7-10

(BOT Board)

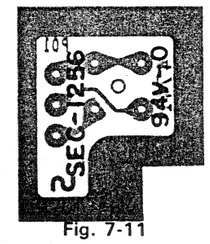
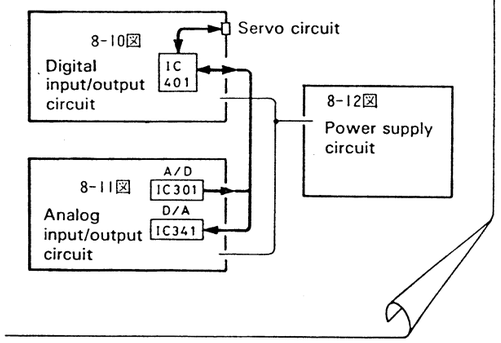


Fig. 7-11

■ Audio Circuit

• Audio Circuit Diagram Connections



(Digital I/O Circuit)

VMW1837A

COMPU LINK

J402 QMB3633-001

J401-1 COAX IN

J401-2 COAX OUT

VHJ3015-002

VQZ0044-002

J404 OPT IN TORX176

J403 OPT OUT TOTX176

IC401 CF7B10PH

IC402 TC74HCU04AP

IC403 TC74HCU04AP

IC404 TC74HC86AP XOR

IC405 TC74HC27AP 3 INPUT NOR

IC406 TC74HC02AP NOR

IC451 MN1280(Q) RESET

SCA

D. OUT MUTE

W401 10 CKSH 9 VCO 8 ADCH 7 ACIN 6 CHCK 5 2BCKO 4 DAO 3 SPCD1 2 SSYNC 1 COHO TO SERVO

To B-13 on Page 26

W402 11 MONION 10 D-MUTO 9 A-MUTO 8 MSEN 7 SMDATA 6 MSCDATA 5 MSCLK 4 DMDATA 3 MDDATA 2 MDCLK 1 RESET TO SERVO

To F-18 on Page 26

CN401 8 METO 7 METEN 6 METCLK 5 MDCLOCK 4 MDDATA 3 DMDATA 2 DCS 1 RESET TO DISPLAY

To D-8 on Page 24

VHC0075-008

VD-E259-001AV 12

VD-E259-001PW 2

To E-10 of right figure

To A-1 on Page 29

Blue line shows the signal at playbak.
Red line shows the signal at recording.
+B Line.

Fig. 7-12

(Analog I/O Circuit)

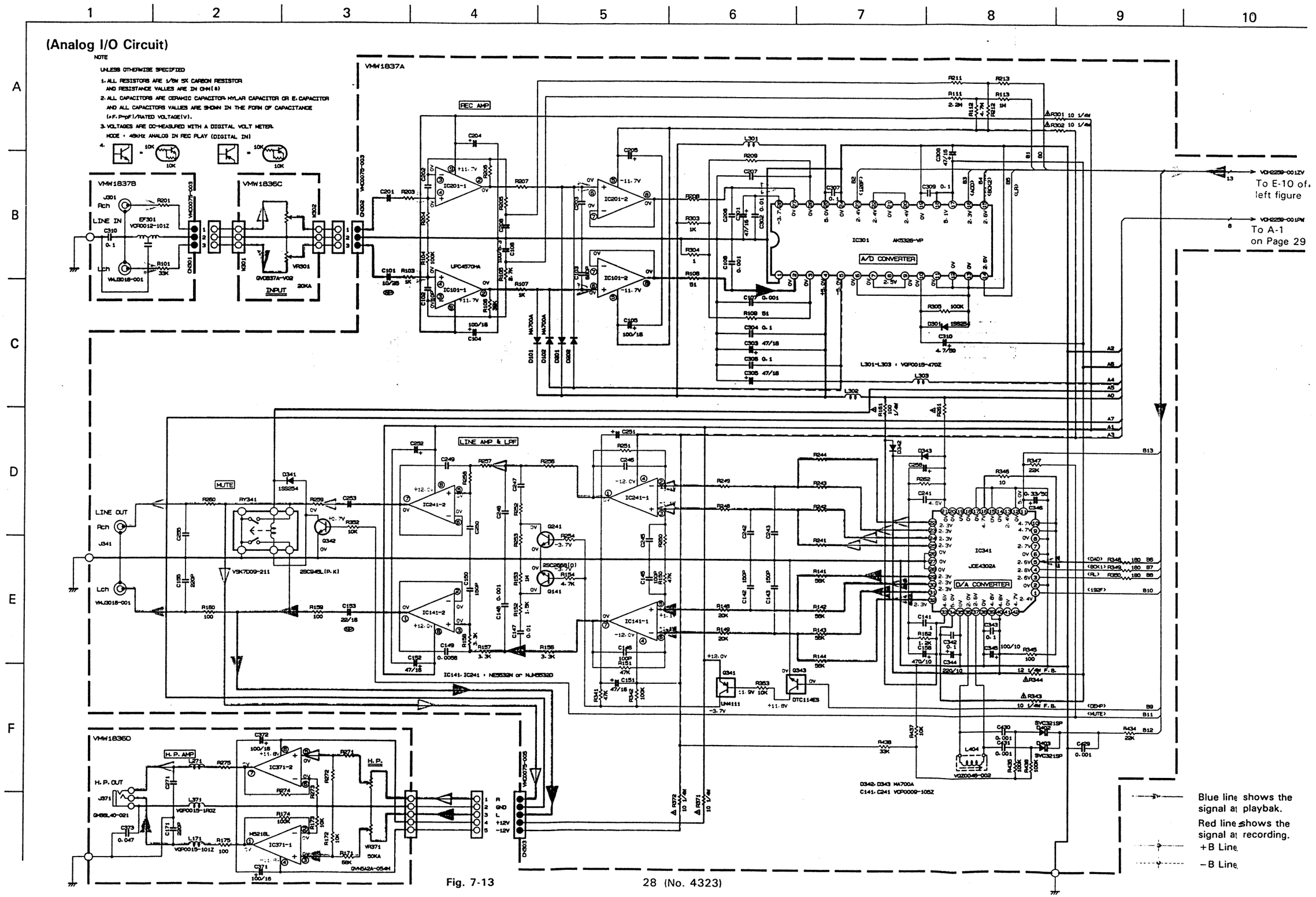
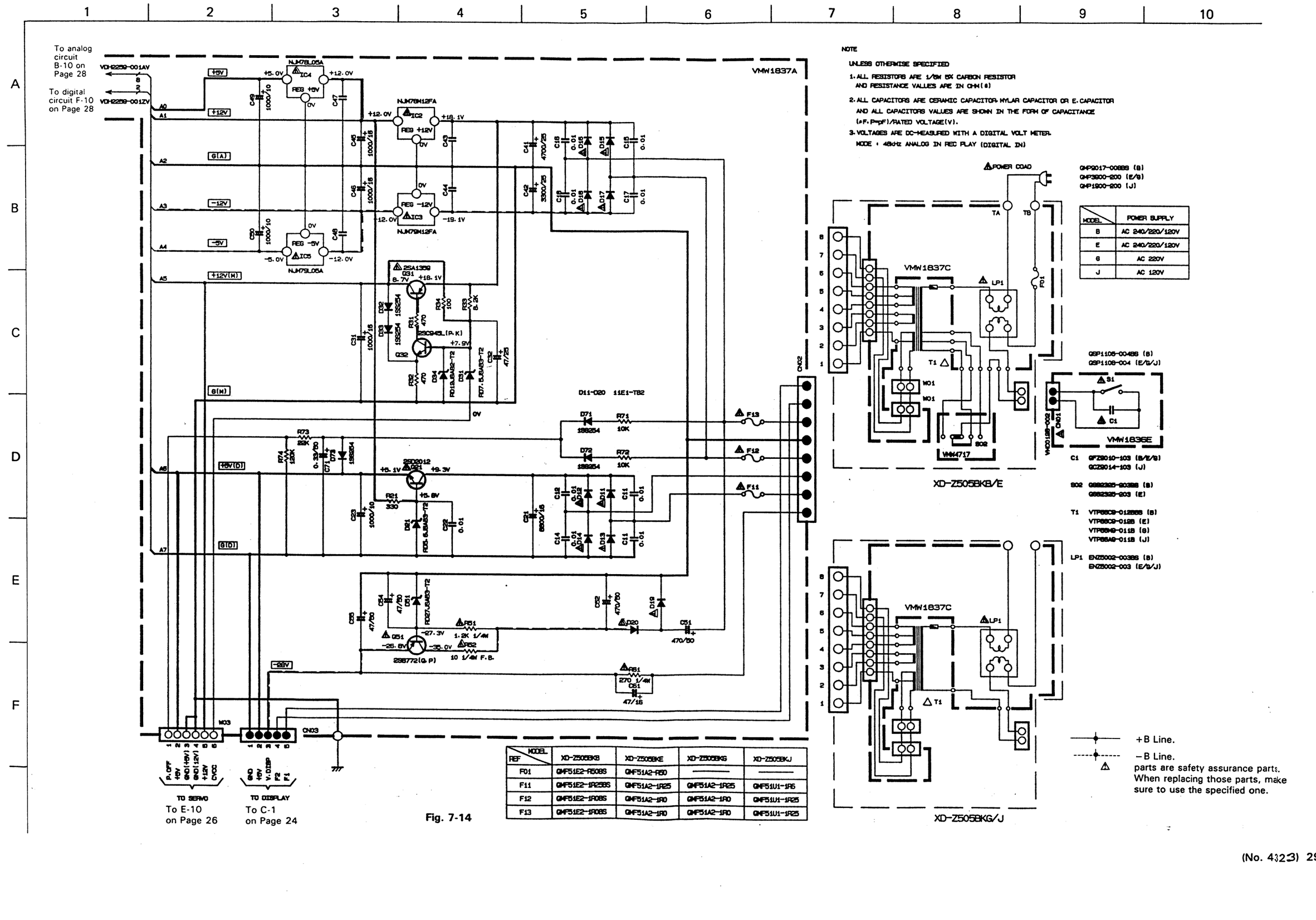


Fig. 7-13

■ Power Supply Circuit



REF \ MODEL	XD-Z505BKB	XD-Z505BKE	XD-Z505BKG	XD-Z505BKJ
F01	QMF51E2-R50BS	QMF51A2-R50	———	———
F11	QMF51E2-1R25BS	QMF51A2-1R25	QMF51A2-1R25	QMF51U1-1R6
F12	QMF51E2-1R00BS	QMF51A2-1R0	QMF51A2-1R0	QMF51U1-1R25
F13	QMF51E2-1R00BS	QMF51A2-1R0	QMF51A2-1R0	QMF51U1-1R25

Fig. 7-14

■ Main Board (Main/Power/Analog/Jack Board)

(Bottom side)

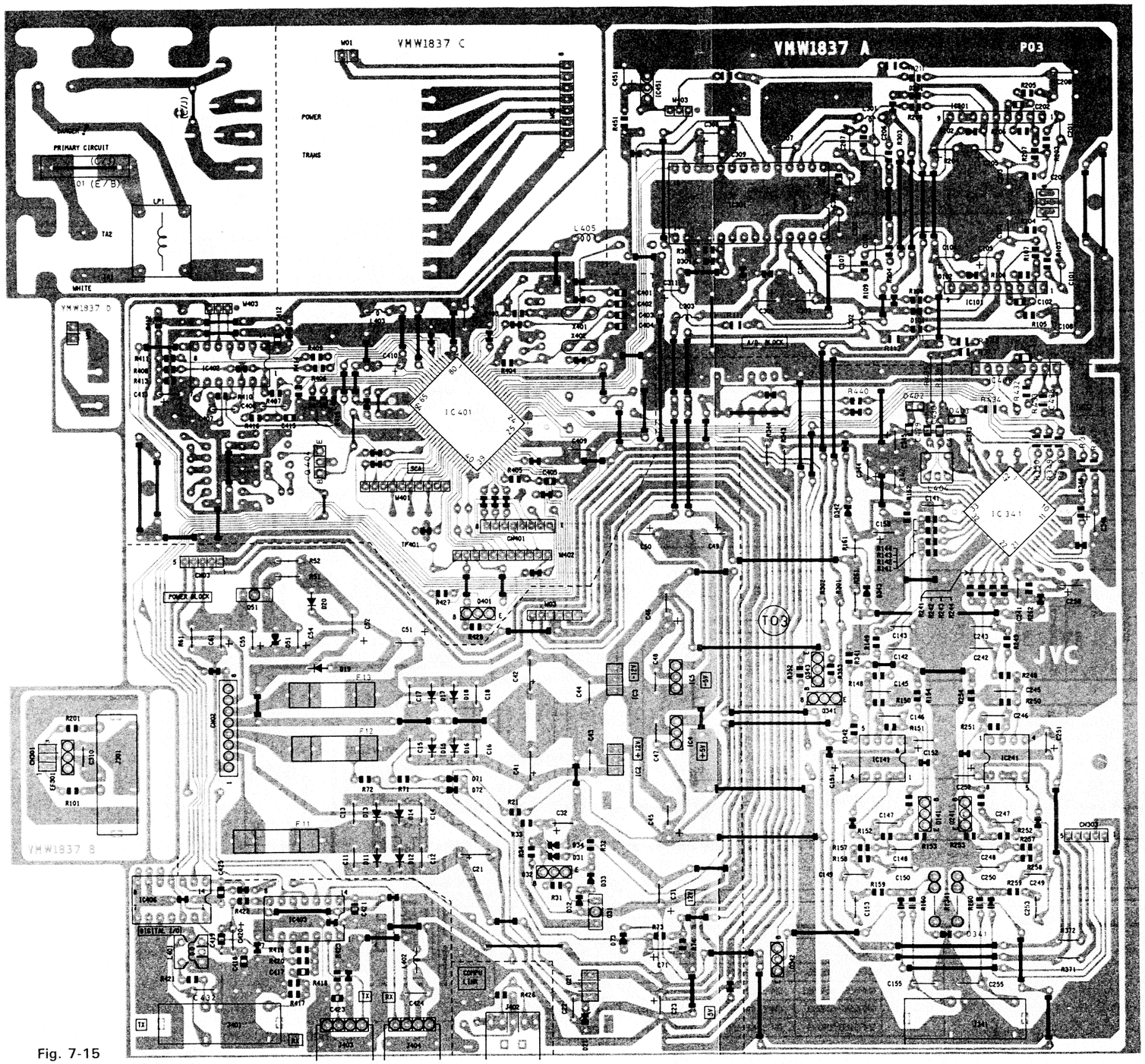


Fig. 7-15

■ V. Select Switch Board (B/E/G version only)

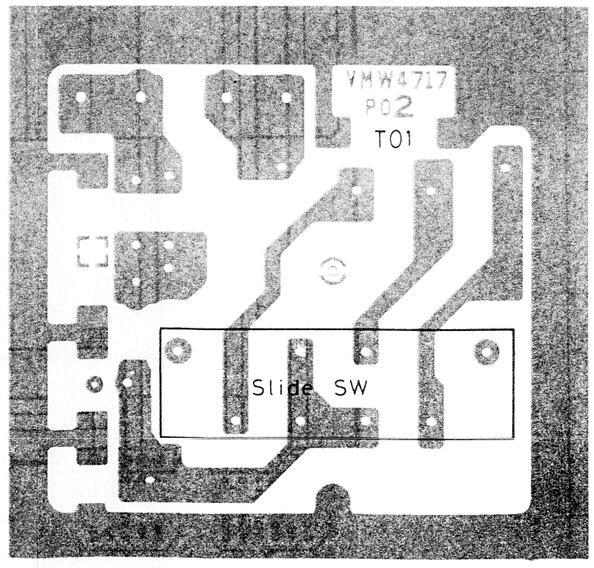


Fig. 7-16

(Top side)

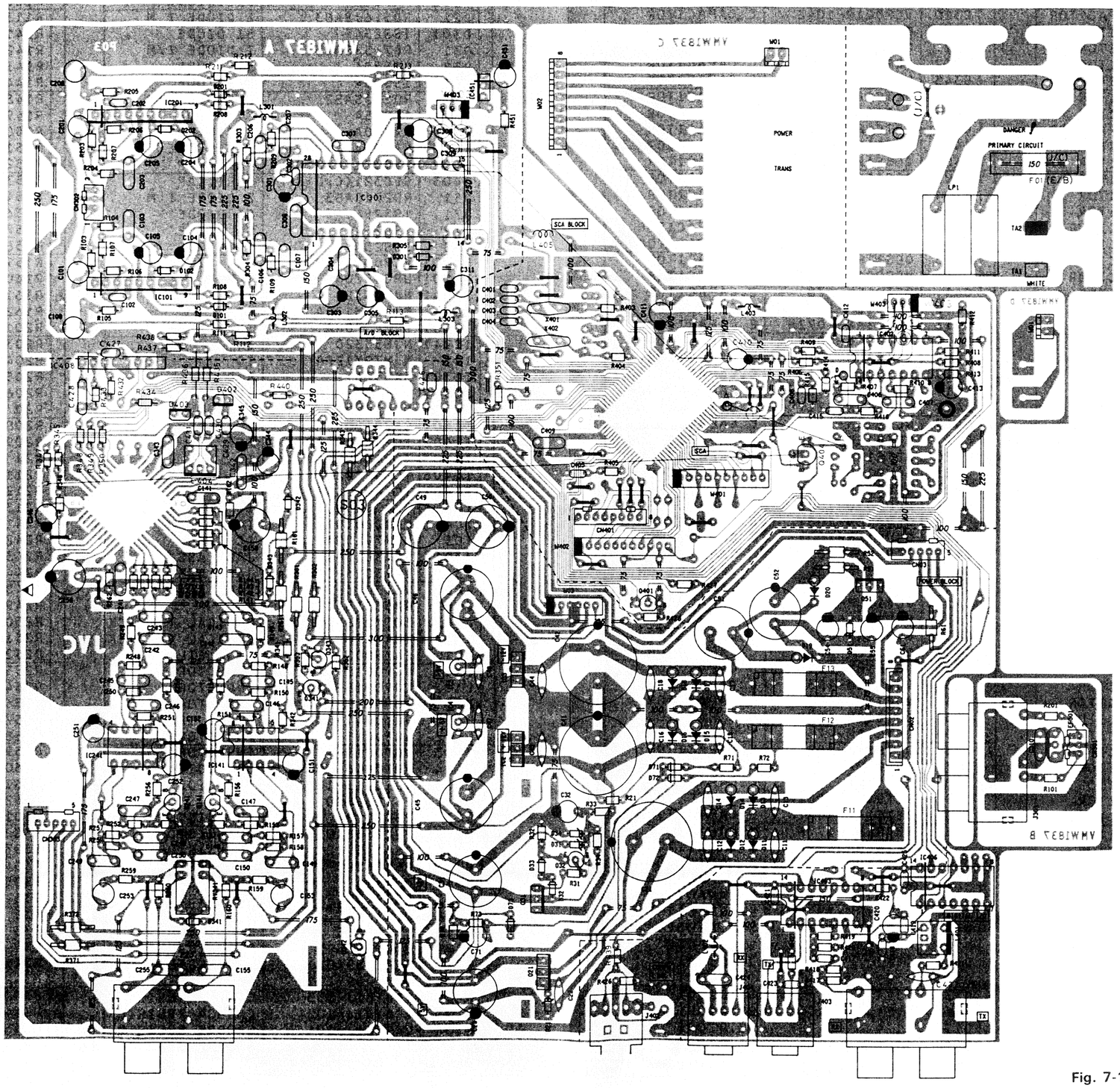


Fig. 7-17

8 P.C. Board Parts List

⚠ Parts are safety assurance parts. When replacing those parts, make sure to use the specified one.

• Main board Parts List

⚠	REF.	PARTS NO.	PARTS NAME
	C101	QEN61EM-106Z	NP.E.CAPACITOR
	C102	QCS11HJ-100	C CAPACITOR
	C103	VCP004J-681ZM	F CAPACITOR
	C104	QETC1CM-107ZN	E.CAPACITOR
	C105	QETC1CM-107ZN	E.CAPACITOR
	C106	VCP004J-103ZM	F CAPACITOR
	C107	VCP004J-103ZM	F CAPACITOR
	C108	QEN61AM-107ZN	NP E CAPACITOR
	C11	QCF11HP-103	C.CAPACITOR
	C12	QCF11HP-103	C.CAPACITOR
	C13	QCF11HP-103	C.CAPACITOR
	C14	QCF11HP-103	C.CAPACITOR
	C141	VCP0009-105Z	C CAPACITOR
	C142	QFP31HJ-151ZM	PP CAPACITOR
	C143	QFP31HJ-151ZM	PP CAPACITOR
	C145	QFP31HJ-101ZM	PP CAPACITOR
	C146	QFP31HJ-101ZM	PP CAPACITOR
	C147	VCP004J-103ZM	F CAPACITOR
	C148	QFN41HJ-102	M.CAPACITOR
	C149	QFN41HJ-562	M.CAPACITOR
	C15	QCF11HP-103	C.CAPACITOR
	C150	QFP31HJ-151ZM	PP CAPACITOR
	C151	QETC1CM-476ZN	E.CAPACITOR
	C152	QETC1CM-476ZN	E.CAPACITOR
	C153	QEN61CM-226ZN	NP E CAPACITOR
	C155	QFP41HJ-221	PP CAPACITOR
	C158	QETC1AM-477ZN	E CAPACITOR
	C16	QCF11HP-103	C.CAPACITOR
	C17	QCF11HP-103	C.CAPACITOR
	C18	QCF11HP-103	C.CAPACITOR
	C201	QEN61EM-106Z	NP.E.CAPACITOR
	C202	QCS11HJ-100	C CAPACITOR
	C203	VCP004J-681ZM	F CAPACITOR
	C204	QETC1CM-107ZN	E.CAPACITOR
	C205	QETC1CM-107ZN	E.CAPACITOR
	C206	VCP004J-103ZM	F CAPACITOR
	C207	VCP004J-103ZM	F CAPACITOR
	C208	QEN61AM-107ZN	NP E CAPACITOR
	C21	QETB1CM-688N	E.CAPACITOR
	C22	QCF11HP-103	C.CAPACITOR
	C23	QETC1AM-108ZN	E CAPACITOR
	C241	VCP0009-105Z	C CAPACITOR
	C242	QFP31HJ-151ZM	PP CAPACITOR
	C243	QFP31HJ-151ZM	PP CAPACITOR
	C245	QFP31HJ-101ZM	PP CAPACITOR
	C246	QFP31HJ-101ZM	PP CAPACITOR
	C247	VCP004J-103ZM	F CAPACITOR
	C248	QFN41HJ-102	M.CAPACITOR
	C249	QFN41HJ-562	M.CAPACITOR
	C250	QFP31HJ-151ZM	PP CAPACITOR
	C251	QETC1CM-476ZN	E.CAPACITOR
	C252	QETC1CM-476ZN	E.CAPACITOR
	C253	QEN61CM-226ZN	NP E CAPACITOR
	C255	QFP41HJ-221	PP CAPACITOR
	C258	QETC1AM-477ZN	E CAPACITOR
	C301	QETC1CM-476ZN	E.CAPACITOR
	C302	QCVB1CN-103Y	C CAPACITOR
	C303	QETC1CM-476ZN	E.CAPACITOR
	C304	VCP0010-104Z	C CAPACITOR
	C305	QETC1CM-476ZN	E.CAPACITOR
	C306	VCP0010-104Z	C CAPACITOR
	C307	VCP0010-104Z	C CAPACITOR
	C308	QETC1CM-476ZN	E.CAPACITOR
	C309	VCP0010-104Z	C CAPACITOR
	C31	QETB1CM-108N	E CAPACITOR

⚠	REF.	PARTS NO.	PARTS NAME
	C310	VCP0010-104Z	C CAPACITOR
	C311	QETC1EM-106ZN	E.CAPACITOR
	C32	QETC1EM-476ZN	E.CAPACITOR
	C342	VCP0010-104Z	C CAPACITOR
	C343	VCP0010-104Z	C CAPACITOR
	C344	QETC1AM-107ZN	E CAPACITOR
	C345	QETC1AM-227ZN	E CAPACITOR
	C346	QETC1HM-334ZN	E.CAPACITOR
	C401	QCS11HJ-330	C CAPACITOR
	C402	QCS11HJ-330	C CAPACITOR
	C403	QCS11HJ-270	C.CAPACITOR
	C404	QCS11HJ-270	C.CAPACITOR
	C405	QCS11HJ-270	C.CAPACITOR
	C406	QFV41HJ-223	TF.CAPACITOR
	C407	QFV41HJ-223	TF.CAPACITOR
	C408	QCS11HJ-560	C.CAPACITOR
	C409	VCP0010-104Z	C CAPACITOR
	C41	QETB1EM-478	E.CAPACITOR
	C410	QETC1CM-106ZN	E CAPACITOR
	C411	QETC1AM-107ZN	E CAPACITOR
	C412	QCVB1CN-103Y	C CAPACITOR
	C413	QETC1HM-334ZN	E.CAPACITOR
	C415	QCBB1HK-391Y	C.CAPACITOR
	C417	QCVB1CN-103Y	C CAPACITOR
	C418	QCBB1HK-221Y	C CAPACITOR
	C419	QCVB1CN-103Y	C CAPACITOR
	C42	QETB1EM-338N	E CAPACITOR
	C420	QETC1AM-336ZN	E CAPACITOR
	C421	QCVB1CN-103Y	C CAPACITOR
	C423	QCVB1CN-103Y	C CAPACITOR
	C424	VCP0010-104Z	C CAPACITOR
	C425	QCVB1CN-103Y	C CAPACITOR
	C426	QCVB1CN-103Y	C CAPACITOR
	C427	QCVB1CN-103Y	C CAPACITOR
	C428	QFV41HJ-334	TF.CAPACITOR
	C429	QCBB1HK-102Y	C CAPACITOR
	C43	QCF11HP-103	C.CAPACITOR
	C430	QCBB1HK-102Y	C CAPACITOR
	C431	QCBB1HK-102Y	C CAPACITOR
	C432	QCC11EM-473	C CAPACITOR
	C433	QCBB1HK-331Y	C CAPACITOR
	C434	QCC11EM-103	C CAPACITOR
	C44	QCF11HP-103	C.CAPACITOR
	C45	QETB1CM-108N	E CAPACITOR
	C451	QETC1AM-476ZN	E CAPACITOR
	C46	QETB1CM-108N	E CAPACITOR
	C47	QCF11HP-103	C.CAPACITOR
	C48	QCF11HP-103	C.CAPACITOR
	C49	QETC1AM-108ZN	E CAPACITOR
	C50	QETC1AM-108ZN	E CAPACITOR
	C51	QETB1HR-477N	E CAPACITOR
	C52	QETB1HR-477N	E CAPACITOR
	C54	QETC1HM-476ZN	E CAPACITOR
	C55	QETC1HM-476ZN	E CAPACITOR
	C61	QETC1AM-476ZN	E CAPACITOR
	C71	QETC1HM-334ZN	E.CAPACITOR
	D101	MA700A	S.B.DIODE
	D102	MA700A	S.B.DIODE
⚠	D11	11E1	SI.DIODE
⚠	D12	11E1	SI.DIODE
⚠	D13	11E1	SI.DIODE
⚠	D14	11E1	SI.DIODE
⚠	D15	11E1	SI.DIODE
⚠	D16	11E1	SI.DIODE
⚠	D17	11E1	SI.DIODE

⚠	REF.	PARTS NO.	PARTS NAME
⚠	D18	11E1	SI.DIODE
⚠	D19	11E1	SI.DIODE
⚠	D20	11E1	SI.DIODE
	D201	MA700A	S.B.DIODE
	D202	MA700A	S.B.DIODE
	D21	RD5.6JSAB3	Z DIODE I M
	D301	1SS254T	SI DIODE
	D31	RD7.5JSAB3	Z DIODE I/M
	D32	1SS254	SI DIODE
	D33	1SS254	SI DIODE
	D34	RD12JSAB2	Z DIODE I/M
	D341	1SS254	SI DIODE
	D342	MA700A	S.B.DIODE
	D343	MA700A	S.B.DIODE
	D402	SVC321(C,D)SP	VARI.CAP
	D403	SVC321(C,D)SP	VARI.CAP
	D51	RD27JSAB3	Z DIODE I M
	D71	1SS254	SI DIODE
	D72	1SS254	SI DIODE
	D73	1SS254	SI DIODE
	EF301	VCR0012-101Z	EMI FILTER
	IC101	UPC4570HA	IC
	IC141	NJM5532D	IC
⚠	IC2	NJM78M12FA	IC
	IC201	UPC4570HA	IC
	IC241	NJM5532D	IC
⚠	IC3	NJM79M12FA	IC
	IC301	AK5326	A.D.C.
	IC341	JCE4302A	IC(DAC)
⚠	IC4	NJM78L05A	IC I M
	IC401	CF78120APH	IC
	IC402	TC74HCU04AP	IC
	IC403	TC74HCU04AP	IC
	IC406	TC74HC02AP	IC
	IC407	TC74HC74AP	IC
	IC408	CX23065A	IC
	IC451	MN1280(Q)	IC
⚠	IC5	NJM79L05A	IC I M
	J301	VMJ3016-001	JACK ASSY
	J341	VMJ3016-001	JACK ASSY
	J401	VMJ3016-002	JACK ASSY
	J402	QMS3533-001	JACK
	J403	TOTX176	OPTICAL TX JACK
	J404	TORX176	OPTICAL RX JACK
	LP1	ENZ5002-003	LINE FILTER
	L301	VQP0015-470Z	INDUCTOR
	L302	VQP0015-470Z	INDUCTOR
	L303	VQP0015-470Z	INDUCTOR
	L401	VQZ0044-002	PULSE TRANS
	L402	VQP0015-470Z	INDUCTOR
	L403	VQP0015-470Z	INDUCTOR
	L404	VQZ0046-002	OSC COIL
	L405	VQP0015-101Z	INDUCTOR
	Q141	2SC2668(O)E4	TRANSISTOR
⚠	Q21	2SD2012	TRANSISTOR
	Q241	2SC2668(O)E4	TRANSISTOR
⚠	Q31	2SA1359(OY)	TRANSISTOR
	Q32	2SC945L(P,K)	TRANSISTOR
	Q341	UN4111	TRANSISTOR
	Q342	2SC945L(P,K)	TRANSISTOR
	Q343	DTC114ES	DIGI.TRANSISTOR
	Q401	DTC114ES	DIGI.TRANSISTOR
	Q404	DTC114ES	DIGI.TRANSISTOR
⚠	Q51	2SA1359(OY)	TRANSISTOR
	RY341	VSK7D09-211	RELAY
	R101	QRD161J-333	CARBON RESISTOR
	R103	QRD161J-102	CARBON RESISTOR
	R104	QRD161J-104	CARBON RESISTOR
	R105	QRD161J-272	CARBON RESISTOR
	R106	QRD161J-393	CARBON RESISTOR

⚠	REF.	PARTS NO.	PARTS NAME
	R107	QRD161J-102	CARBON RESISTOR
	R108	QRD161J-510	CARBON RESISTOR
	R109	QRD161J-510	CARBON RESISTOR
	R111	QRD161J-225	CARBON RESISTOR
	R112	QRD161J-475	CARBON RESISTOR
	R113	QRD161J-105	CARBON RESISTOR
	R141	QRV141F-5602AY	CMF RESISTOR
	R142	QRV141F-5602AY	CMF RESISTOR
	R143	QRV141F-5602AY	CMF RESISTOR
	R144	QRV141F-5602AY	CMF RESISTOR
	R148	QRV141F-2002AY	CMF RESISTOR
	R149	QRV141F-2002AY	CMF RESISTOR
	R150	QRV141F-4702AY	CMF RESISTOR
	R151	QRV141F-4702AY	CMF RESISTOR
	R152	QRD161J-152	CARBON RESISTOR
	R153	QRD161J-105	CARBON RESISTOR
	R154	QRD161J-472	CARBON RESISTOR
	R156	QRD161J-332	CARBON RESISTOR
	R157	QRD161J-332	CARBON RESISTOR
	R158	QRD161J-332	CARBON RESISTOR
	R159	QRD161J-101	CARBON RESISTOR
	R160	QRD161J-101	CARBON RESISTOR
⚠	R161	QRD14CJ-101SX	UF RESISTOR
	R162	QRD161J-122	CARBON RESISTOR
	R201	QRD161J-333	CARBON RESISTOR
	R203	QRD161J-102	CARBON RESISTOR
	R204	QRD161J-104	CARBON RESISTOR
	R205	QRD161J-272	CARBON RESISTOR
	R206	QRD161J-393	CARBON RESISTOR
	R207	QRD161J-102	CARBON RESISTOR
	R208	QRD161J-510	CARBON RESISTOR
	R209	QRD161J-510	CARBON RESISTOR
	R21	QRD161J-331	CARBON RESISTOR
	R211	QRD161J-225	CARBON RESISTOR
	R212	QRD161J-475	CARBON RESISTOR
	R213	QRD161J-105	CARBON RESISTOR
	R241	QRV141F-5602AY	CMF RESISTOR
	R242	QRV141F-5602AY	CMF RESISTOR
	R243	QRV141F-5602AY	CMF RESISTOR
	R244	QRV141F-5602AY	CMF RESISTOR
	R248	QRV141F-2002AY	CMF RESISTOR
	R249	QRV141F-2002AY	CMF RESISTOR
	R250	QRV141F-4702AY	CMF RESISTOR
	R251	QRV141F-4702AY	CMF RESISTOR
	R252	QRD161J-152	CARBON RESISTOR
	R253	QRD161J-105	CARBON RESISTOR
	R254	QRD161J-472	CARBON RESISTOR
	R256	QRD161J-332	CARBON RESISTOR
	R257	QRD161J-332	CARBON RESISTOR
	R258	QRD161J-332	CARBON RESISTOR
	R259	QRD161J-101	CARBON RESISTOR
	R260	QRD161J-101	CARBON RESISTOR
⚠	R261	QRD14CJ-101SX	UF RESISTOR
	R262	QRD161J-122	CARBON RESISTOR
⚠	R301	QRD14CJ-100SX	UNF.C.RESISTOR
⚠	R302	QRD14CJ-100SX	UNF.C.RESISTOR
	R303	QRD161J-102	CARBON RESISTOR
	R304	QRD161J-1R0	CARBON RESISTOR
	R305	QRD161J-104	CARBON RESISTOR
	R31	QRD161J-471	CARBON RESISTOR
	R32	QRD161J-471	CARBON RESISTOR
	R33	QRD161J-822	CARBON RESISTOR
	R34	QRD161J-101	CARBON RESISTOR
	R341	QRD161J-473	CARBON RESISTOR
	R342	QRD161J-104	CARBON RESISTOR
⚠	R343	QRZ0077-100X	F.RESISTOR
⚠	R344	QRZ0077-120X	F.B.RESISTOR
	R345	QRD161J-101	CARBON RESISTOR
	R346	QRD161J-100	CARBON RESISTOR
	R347	QRD161J-223	CARBON RESISTOR

XD-Z505 B/C/E/G/J

⚠	REF.	PARTS NO.	PARTS NAME
	R348	QRD161J-181	CARBON RESISTOR
	R349	QRD161J-181	CARBON RESISTOR
	R350	QRD161J-181	CARBON RESISTOR
	R351	QRD161J-471	CARBON RESISTOR
	R352	QRD161J-103	CARBON RESISTOR
	R353	QRD161J-103	CARBON RESISTOR
⚠	R371	QRD14CJ-100SX	UNF.C.RESISTOR
⚠	R372	QRD14CJ-100SX	UNF.C.RESISTOR
	R403	QRD161J-151	CARBON RESISTOR
	R404	QRD161J-151	CARBON RESISTOR
	R405	QRD161J-471	CARBON RESISTOR
	R406	QRD161J-182	CARBON RESISTOR
	R407	QRD161J-331	CARBON RESISTOE
	R408	QRD161J-224	CARBON RESISTOR
	R409	QRD161J-103	CARBON RESISTOR
	R410	QRD161J-473	CARBON RESISTOR
	R411	QRD161J-105	CARBON RESISTOR
	R412	QRD161J-332	CARBON RESISTOR
	R413	QRD161J-332	CARBON RESISTOR
	R414	QRD161J-102	CARBON RESISTOR
	R415	QRD161J-104	CARBON RESISTOR
	R416	QRD161J-472	CARBON RESISTOR
	R417	QRD161J-151	CARBON RESISTOR
	R418	QRD161J-151	CARBON RESISTOR
	R419	QRD161J-103	CARBON RESISTOR
	R420	QRD161J-273	CARBON RESISTOR
	R421	QRD161J-680	CARBON RESISTOR
	R422	QRD161J-150	CARBON RESISTOR
	R423	QRD161J-822	CARBON RESISTOR
	R426	QRD161J-101	CARBON RESISTOR
	R427	QRD161J-152	CARBON RESISTOR
	R428	QRD161J-104	CARBON RESISTOR
	R432	QRD161J-102	CARBON RESISTOR
	R433	QRD161J-102	CARBON RESISTOR
	R434	QRD161J-223	CARBON RESISTOR
	R435	QRD161J-104	C.RESISTOR
	R436	QRD161J-104	C.RESISTOR
	R437	QRD161J-103	CARBON RESISTOR
	R438	QRD161J-333	CARBON RESISTOR
	R439	QRD161J-101	CARBON RESISTOR
	R440	QRD161J-471	CARBON RESISTOR
	R451	QRD161J-151	CARBON RESISTOR
	R51	QRD161J-471	CARBON RESISTOR
⚠	R52	QRZ0077-100X	F.RESISTOR
⚠	R61	QRD14CJ-271SX	UNF.C.RESISTOR
	R71	QRD161J-103	CARBON RESISTOR
	R72	QRD161J-103	CARBON RESISTOR
	R73	QRD161J-223	CARBON RESISTOR
	R74	QRD161J-124	CARBON RESISTOR
⚠	TA1	VMZ0034-002	TAB
⚠	TA2	VMZ0034-002	TAB
	X401	VCX5023-001	CRYSTAL
	X402	VCX5016-934	CRYSTAL
⚠	F11	QMF51A2-1R25	FUSE
⚠	F12	QMF51A2-1R0	FUSE
⚠	F13	QMF51A2-1R0	FUSE

• Display Board Parts List

⚠	REF.	PARTS NO.	PARTS NAME
	CF801	EFO-GC4004T4	CERA LOCK
	CN01	VMC0126-002	CONNECTOR
⚠	C1	QFZ9010-103	M.CAPACITOR
	C171	QCBB1HK-221Y	C CAPACITOR
	C271	QCBB1HK-221Y	C CAPACITOR
	C371	QETC1CM-107ZN	E.CAPACITOR
	C372	QETC1CM-107ZN	E.CAPACITOR
	C373	QCC11EM-473	C CAPACITOR
	C801	QFV41HJ-224	TF CAPACITOR
	C802	QETC1AM-227ZN	E CAPACITOR
	C805	QCVB1CN-103Y	C CAPACITOR
	D801	MA165	SI DIODE
	FL801	BG-614GK	FL TUBE
	IC371	M5218L	IC
	IC801	HD614023SA55	IC
	J371	QMS6L40-021	JACK
	L171	VQP0015-101Z	INDUCTOR
	L271	VQP0015-101Z	INDUCTOR
	L371	VQP0015-1R0Z	INDUCTOR
	Q801	UN6113	TRANSISTOR
	Q802	UN6213	TRANSISTOR
	Q803	UN6116	TRANSISTOR
	Q804	UN6116	TRANSISTOR
	Q805	UN6116	TRANSISTOR
	Q806	UN6116	TRANSISTOR
	RM801	SBX1483-52	RM RECIVER
	R171	QRD161J-683	CARBON RESISTOR
	R172	QRD161J-103	CARBON RESISTOR
	R173	QRD161J-103	CARBON RESISTOR
	R174	QRD161J-104	CARBON RESISTOR
	R175	QRD161J-101	CARBON RESISTOR
	R271	QRD161J-683	CARBON RESISTOR
	R272	QRD161J-103	CARBON RESISTOR
	R273	QRD161J-103	CARBON RESISTOR
	R274	QRD161J-104	CARBON RESISTOR
	R275	QRD161J-101	CARBON RESISTOR
	R801	QRD161J-151	CARBON RESISTOR
	R802	QRD161J-473	CARBON RESISTOR
	R803	QRD161J-473	CARBON RESISTOR
	R804	QRD161J-473	CARBON RESISTOR
	R805	QRD161J-473	CARBON RESISTOR
	R806	QRD161J-105	CARBON RESISTOR
	R809	QRD161J-223	CARBON RESISTOR
	R816	QRD161J-103	CARBON RESISTOR
⚠	S1	QSP1106-004	PUSH SWITCH
	S801	QSP4H11-V05Z	TACT SWITCH
	S802	QSP4H11-V13Z	TACT SWITCH
	S803	QSP4H11-V13Z	TACT SWITCH
	S804	QSP4H11-V05Z	TACT SWITCH
	S805	QSP4H11-V13Z	TACT SWITCH
	S806	QSP4H11-V13Z	TACT SWITCH
	S807	QSP4H11-V05Z	TACT SWITCH
	S808	QSP4H11-V05Z	TACT SWITCH
	S809	QSP4H11-V13Z	TACT SWITCH
	S810	QSP4H11-V13Z	TACT SWITCH
	S811	QSP4H11-V05Z	TACT SWITCH
	S812	QSP4H11-V05Z	TACT SWITCH
	S813	QSP4H11-V13Z	TACT SWITCH
	S814	QSP4H11-V13Z	TACT SWITCH
	S815	QSP4H11-V05Z	TACT SWITCH
	S816	QSS7A23-V05	SLIDE SWITCH
	S817	QSS7A23-V05	SLIDE SWITCH
	S818	QSS7A22-V05	SLIDE SWITCH
	VR301	QVDB37A-V02	V RESISTOR
	VR371	QVN5A2A-054M	V.RESISTOR

• RF Board Parts List

⚠	REF.	PARTS NO.	PARTS NAME
	PWB	VMW2789-002	4PW BOARD (W)
	CA01	NCB21HK-272AY	C CAPACITOR
	CA02	QCF81CZ-105YA	C CAPACITOR
	CA03	QCF81CZ-105YA	C CAPACITOR
	CA04	NCB21HK-103AY	C CAPACITOR
	CA05	NCB21HK-102AY	C CAPACITOR
	CA21	NCB21HK-272AY	C CAPACITOR
	CA22	QCF81CZ-105YA	C CAPACITOR
	CA23	QCF81CZ-105YA	C CAPACITOR
	CA24	NCB21HK-103AY	C CAPACITOR
	CA25	NCB21HK-102AY	C CAPACITOR
	CA41	NCS21HJ-560AY	C CAPASITOR
	CA42	NCS21HJ-271AY	C CAPACITOR
	CA43	QCF81CZ-105YA	C CAPACITOR
	CA44	NCF21HZ-104AY	C CAPACITOR
	CA45	NCF21HZ-104AY	C CAPACITOR
	CA46	NCB21HK-103AY	C CAPACITOR
	CA47	NCB21HK-103AY	C CAPACITOR
	CA48	NCB21HK-103AY	C CAPACITOR
	CA49	NCB21HK-103AY	C CAPACITOR
	CA81	NCF21HZ-104AY	C CAPACITOR
	CA84	QCF81CZ-105YA	C CAPACITOR
	CA85	NCB21HK-822AY	C CAPACITOR
	CA86	NCS21HJ-102AY	C CAPACITOR
	CA88	NCF21HZ-104AY	C CAPACITOR
	CA91	NCF21HZ-104AY	C CAPACITOR
	CA93	NCF21HZ-104AY	C CAPACITOR
	CA95	NCF21HZ-104AY	C CAPACITOR
	CNA01	VMC0125-008	CONNECTOR
	CNA02	VMC0085-R13	CONNECTOR
	CNA03	VMC0085-R04	CONNECTOR
	DA81	MA3062(M)	ZENER DIODE
	ICA01	TA8139F	IC
	LA81	VQP1004-271	INDUCTOR
	QA01	UN2212	TRANSISTOR
	QA21	UN2212	TRANSISTOR
	QA41	2SC3142(J3J4)	TRANSISTOR
	QA42	2SB709(Q)	TRANSISTOR
	QA43	2SC3142(J3J4)	TRANSISTOR
	QA44	2SA1256(E4E5)	TRANSISTOR
	QA45	2SC3142(J3J4)	TRANSISTOR
	QA46	2SA1256(E4E5)	TRANSISTOR
	QA47	UN2212	TRANSISTOR
	QA81	2SD874(Q,R)	TRANSISTOR
	RA01	NRSA02J-561NY	MG RESISTOR
	RA02	NRSA02J-334NY	MG RESISTOR
	RA04	NRSA02J-103NY	MG RESISTOR
	RA07	NRSA02J-683NY	MG RESISTOR
	RA11	NRSA02J-0RONY	MG RESISTOR
	RA12	NRSA02J-0RONY	MG RESISTOR
	RA13	NRSA02J-223NY	MG RESISTOR
	RA14	NRSA02J-153NY	MG RESISTOR
	RA21	NRSA02J-561NY	MG RESISTOR
	RA22	NRSA02J-334NY	MG RESISTOR
	RA24	NRSA02J-103NY	MG RESISTOR
	RA27	NRSA02J-683NY	MG RESISTOR
	RA31	NRSA02J-0RONY	MG RESISTOR
	RA32	NRSA02J-0RONY	MG RESISTOR
	RA33	NRSA02J-223NY	MG RESISTOR
	RA34	NRSA02J-153NY	MG RESISTOR
	RA40	NRSA02J-102NY	MG RESISTOR
	RA41	NRSA02J-681NY	MG RESISTOR
	RA42	NRSA02J-0RONY	MG RESISTOR
	RA43	NRSA02J-103NY	MG RESISTOR
	RA44	NRSA02J-0RONY	MG RESISTOR

⚠	REF.	PARTS NO.	PARTS NAME
	RA45	NRSA02J-822NY	MG REAIATOR
	RA46	NRSA02J-103NY	MG RESISTOR
	RA47	NRSA02J-183NY	MG RESISTOR
	RA48	NRSA02J-472NY	MG RESISTOR
	RA49	NRSA02J-333NY	MG RESISTOR
	RA50	NRSA02J-563NY	MG RESISTOR
	RA51	NRSA02J-122NY	MG RESISTOR
	RA52	NRSA02J-472NY	MG RESISTOR
	RA53	NRSA02J-332NY	MG RESISTOR
	RA54	NRSA02J-102NY	MG RESISTOR
	RA55	NRSA02J-333NY	MG RESISTOR
	RA56	NRSA02J-563NY	MG RESISTOR
	RA57	NRSA02J-122NY	MG RESISTOR
	RA58	NRSA02J-472NY	MG RESISTOR
	RA59	NRSA02J-822NY	MG REAIATOR
	RA60	NRSA02J-472NY	MG RESISTOR
	RA61	NRSA02J-103NY	MG RESISTOR
	RA64	NRSA02J-122NY	MG RESISTOR
	RA65	NRSA02J-153NY	MG RESISTOR
	RA66	NRSA02J-393NY	MG RESISTOR
	RA81	NRSA02J-0RONY	MG RESISTOR
	RA82	NRSA02J-681NY	MG RESISTOR
	RFAMP	VMW2789-002	4PW BOARD (W)

• Servo Board Parts List

⚠	REF.	PARTS NO.	PARTS NAME
	CF551	EFO-GC4194T4	CERAMIC RESONAT
	CN504	VMC0063-013	CONNECTOR
	CN551	VMC0125-016	CONNECTOR
	CN601	VMC0125-018	CONNECTOR
	C501	QETC1AM-107ZN	E CAPACITOR
	C502	NCF21HZ-104AY	C CAPACITOR
	C503	NCF21HZ-104AY	C CAPACITOR
	C504	NCF21HZ-104AY	C CAPACITOR
	C505	QETC1AM-107ZN	E CAPACITOR
	C507	NCB21HK-103AY	C CAPACITOR
	C508	NCS21HJ-390AY	C CAPACITOR
	C509	NCS21HJ-101AY	C CAPACITOR
	C510	NCS21HJ-101AY	C CAPACITOR
	C511	NCS21HJ-270AY	C.CAPACITOR
	C512	NCS21HJ-270AY	C.CAPACITOR
	C513	QETC1AM-476ZN	E CAPACITOR
	C521	NCS21HJ-220AY	C CAPACITOR
	C522	QETC1AM-476ZN	E CAPACITOR
	C523	NCF21HZ-104AY	C CAPACITOR
	C524	NCB21HK-102AY	C CAPACITOR
	C525	NCB21HK-102AY	C CAPACITOR
	C526	NCB21HK-102AY	C CAPACITOR
	C528	NCF21HZ-103AY	C CAPACITOR
	C529	QETC1HM-105ZN	E CAPACITOR
	C530	NCB21HK-103AY	C CAPACITOR
	C531	QETC1AM-476ZN	E CAPACITOR
	C532	NCS21HJ-101AY	C CAPACITOR
	C533	NCB21HK-682AY	C CAPACITOR
	C534	NCS21HJ-270AY	C.CAPACITOR
	C538	NCF21HZ-103AY	C CAPACITOR
	C540	QETC1CM-106ZN	E CAPACITOR
	C541	QETC1AM-476ZN	E CAPACITOR
	C542	NCF21HZ-104AY	C CAPACITOR
	C543	NCB21HK-103AY	C CAPACITOR
	C551	NCF21HZ-104AY	C CAPACITOR
	C552	NCF21HZ-104AY	C CAPACITOR
	C553	QETC1CM-106ZN	E CAPACITOR
	C556	QETC1EM-106ZN	E.CAPACITOR
	C557	NCB21HK-223AY	C CAPACITOR
	C558	NCB21HK-223AY	C CAPACITOR
	C559	NCB21HK-103AY	C CAPACITOR
	C601	QETC1CM-106ZN	E CAPACITOR
	C602	QETC1HM-105ZN	E CAPACITOR
	C603	NCF21HZ-473AY	C CAPACITOR
	C604	QETC1CM-106ZN	E CAPACITOR
	C605	QETC1CM-106ZN	E CAPACITOR
	C606	QETC1CM-106ZN	E CAPACITOR
	C607	QETC1CM-106ZN	E CAPACITOR
	C621	QETC1CM-106ZN	E CAPACITOR
	C622	QETC1HM-105ZN	E CAPACITOR
	C623	QETC1CM-106ZN	E CAPACITOR
	C624	QETC1CM-106ZN	E CAPACITOR
	C625	NCF21HZ-103AY	C CAPACITOR
	C626	NCS21HJ-151AY	C CAPACITOR
	C641	NCB21HK-152AY	C CAPACITOR
	C642	NCB21HK-472AY	C CAPACITOR
	C643	QFV41HJ-104	TF.CAPACITOR
	C651	NCB21HK-152AY	C CAPACITOR
	C652	NCB21HK-152AY	C CAPACITOR
	C653	QFV71HJ-274ZM	TF CAPACITOR
	C654	QETC1HM-475ZN	E CAPACITOR
	C661	QETC1EM-475ZN	E.CAPACITOR
	C662	QER41CM-106	E CAPACITOR
	C671	QETC1CM-106ZN	E CAPACITOR
	C672	NCB21HK-223AY	C CAPACITOR

⚠	REF.	PARTS NO.	PARTS NAME
	C681	QETC1HM-105ZN	E CAPACITOR
	C682	QETC1HM-105ZN	E CAPACITOR
	C701	QER41CM-106	E CAPACITOR
	C702	NCB21HK-102AY	C CAPACITOR
	C722	NCF21HZ-104AY	C CAPACITOR
	C723	NCB21HK-223AY	C CAPACITOR
	C751	QETC1AM-107ZN	E CAPACITOR
	C752	QETC1EM-107ZN	E.CAPACITOR
	D501	MA346	V DIODE
	D502	MA151WK	SI DIODE
	IC501	TC9226F	DAT PROCESSOR
	IC521	TC9225AG	DAT CONTROLER
	IC522	UPD4053BG	IC CMOS
	IC551	UPD75112CW-075	MICRO COMPUTER
	IC552	M54649L	IC SIP BIP
	IC601	HA13403V	IC
	IC602	UPC324G2	IC
	IC603	UPC339G2	IC
	IC604	UPC324G2	IC
	IC605	UPD4066BG	IC
	IC606	M54649L	IC SIP BIP
	IC607	BA6109	IC SIP
	L501	VQZ0046-004	OSC COIL
	Q501	2SC3052(E)	TRANSISTOR
	Q502	2SC3052(E)	TRANSISTOR
	Q521	UN2213	TRANSISTOR
	Q522	2SD601A(R)	TRANSISTOR
	Q523	2SD601A(R)	TRANSISTOR
	Q601	UN2213	TRANSISTOR
	Q651	2SD601A(R)	TRANSISTOR
	Q652	UN2111	TRANSISTOR
	Q661	2SD601A(R)	TRANSISTOR
	R501	NRSA02J-472NY	MG RESISTOR
	R502	NRSA02J-473NY	MG REGISTOR
	R504	NRSA02J-683NY	MG RESISTOR
	R505	NRSA02J-393NY	MG RESISTOR
	R506	NRSA02J-102NY	MG RESISTOR
	R507	NRSA02J-101NY	MG RESISTOR
	R508	NRSA02J-223NY	MG RESISTOR
	R509	NRSA02J-221NY	MG RESISTOR
	R521	NRSA02J-333NY	MG RESISTOR
	R522	NRSA02J-103NY	MG RESISTOR
	R523	NRSA02J-222NY	MG RESISTOR
	R524	NRSA02J-473NY	MG REGISTOR
	R525	NRSA02J-473NY	MG REGISTOR
	R526	NRSA02J-473NY	MG REGISTOR
	R527	NRSA02J-472NY	MG RESISTOR
	R530	NRSA02J-473NY	MG REGISTOR
	R531	NRSA02J-102NY	MG RESISTOR
	R532	NRSA02J-102NY	MG RESISTOR
	R533	NRSA02J-511NY	MG RESISTOR
	R534	NRSA02J-511NY	MG RESISTOR
	R535	NRSA02J-511NY	MG RESISTOR
	R536	NRSA02J-473NY	MG REGISTOR
	R537	NRSA02J-472NY	MG RESISTOR
	R538	NRSA02J-223NY	MG RESISTOR
	R539	NRSA02J-121NY	CARBON RESISTOR
	R540	NRSA02J-331NY	MG RESISTOR
	R541	NRSA02J-472NY	MG RESISTOR
	R551	NRSA02J-472NY	MG RESISTOR
	R552	NRSA02J-332NY	MG RESISTOR
	R554	NRSA02J-223NY	MG RESISTOR
	R561	NRSA02J-682NY	MG RESISTOR
	R562	NRSA02J-103NY	MG RESISTOR
	R563	NRSA02J-103NY	MG RESISTOR
	R564	NRSA02J-103NY	MG RESISTOR
	R565	NRSA02J-103NY	MG RESISTOR
	R566	NRSA02J-473NY	MG REGISTOR
	R571	NRSA02J-181NY	MG REGISTOR
	R572	NRSA02J-221NY	MG RESISTOR

⚠	REF.	PARTS NO.	PARTS NAME
	R573	NRSA02J-104NY	MG RESISTOR
	R574	NRSA02J-181NY	MG REGISTOR
	R575	NRSA02J-221NY	MG RESISTOR
	R576	NRSA02J-104NY	MG RESISTOR
	R601	QRX019J-R47A	MF RESISTOR
	R602	NRSA02J-101NY	MG RESISTOR
	R603	NRSA02J-222NY	MG RESISTOR
	R604	NRSA02J-222NY	MG RESISTOR
	R605	NRSA02J-393NY	MG RESISTOR
	R606	NRSA02J-103NY	MG RESISTOR
	R621	NRSA02J-152NY	MG RESISTOR
	R622	NRSA02J-821NY	MG RESISTOR
	R623	NRSA02J-102NY	MG RESISTOR
	R624	NRSA02J-102NY	MG RESISTOR
	R625	NRSA02J-104NY	MG RESISTOR
	R626	NRSA02J-472NY	MG RESISTOR
	R627	NRSA02J-472NY	MG RESISTOR
	R628	NRSA02J-474NY	MG RESISTOR
	R629	NRSA02J-474NY	MG RESISTOR
	R630	NRSA02J-103NY	MG RESISTOR
	R631	NRSA02J-224NY	MG RESISTOR
	R632	NRSA02J-562NY	MG RESISTOR
	R633	NRSA02J-103NY	MG RESISTOR
	R634	NRSA02J-103NY	MG RESISTOR
	R635	NRSA02J-563NY	MG RESISTOR
	R636	NRSA02J-562NY	MG RESISTOR
	R637	NRSA02J-103NY	MG RESISTOR
	R641	NRSA02J-104NY	MG RESISTOR
	R642	NRSA02J-563NY	MG RESISTOR
	R643	NRSA02J-823NY	MG RESISTOR
	R644	NRSA02J-183NY	MG RESISTOR
	R645	NRSA02J-823NY	MG RESISTOR
	R651	NRSA02J-104NY	MG RESISTOR
	R652	NRSA02J-223NY	MG RESISTOR
	R653	NRSA02J-563NY	MG RESISTOR
	R654	NRSA02J-103NY	MG RESISTOR
	R655	NRSA02J-103NY	MG RESISTOR
	R656	NRSA02J-105NY	MG RESISTOR
	R657	NRSA02J-473NY	MG REGISTOR
	R658	NRSA02J-155NY	MG RESISTOR
	R659	NRSA02J-104NY	MG RESISTOR
	R660	NRSA02J-472NY	MG RESISTOR
	R661	NRSA02J-473NY	MG REGISTOR
	R662	NRSA02J-473NY	MG REGISTOR
	R663	NRSA02J-105NY	MG RESISTOR
	R664	NRSA02J-562NY	MG RESISTOR
	R665	NRSA02J-223NY	MG RESISTOR
	R666	NRSA02J-103NY	MG RESISTOR
	R671	NRSA02J-221NY	MG RESISTOR
	R681	NRSA02J-102NY	MG RESISTOR
	R682	NRSA02J-102NY	MG RESISTOR
	R683	NRSA02J-474NY	MG RESISTOR
	R684	NRSA02J-474NY	MG RESISTOR
	R685	NRSA02J-103NY	MG RESISTOR
	R686	NRSA02J-224NY	MG RESISTOR
	R687	NRSA02J-562NY	MG RESISTOR
	R688	NRSA02J-103NY	MG RESISTOR
	R701	NRSA02J-334NY	MG RESISTOR
	R702	NRSA02J-102NY	MG RESISTOR
	R705	NRSA02J-225NY	MG RESISTOR
	R706	NRSA02J-105NY	MG RESISTOR
	R707	NRSA02J-683NY	MG RESISTOR
	R708	NRSA02J-683NY	MG RESISTOR
	R709	NRSA02J-334NY	MG RESISTOR
	R721	NRSA02J-221NY	MG RESISTOR
	R722	QRX019J-2R2A	MF RESISTOR
	TP501	VMC0176-004	CONNECTOR
	TP502	VMC0176-008	CONNECTOR
	VR521	QVZ3523-503AZ	V RESISTOR

• V. Select Board Parts List

⚠	REF.	PARTS NO.	PARTS NAME
⚠	S02	QSS2325-203BS	SLIDE SWITCH

9 Exploded View of Enclosure Assembly

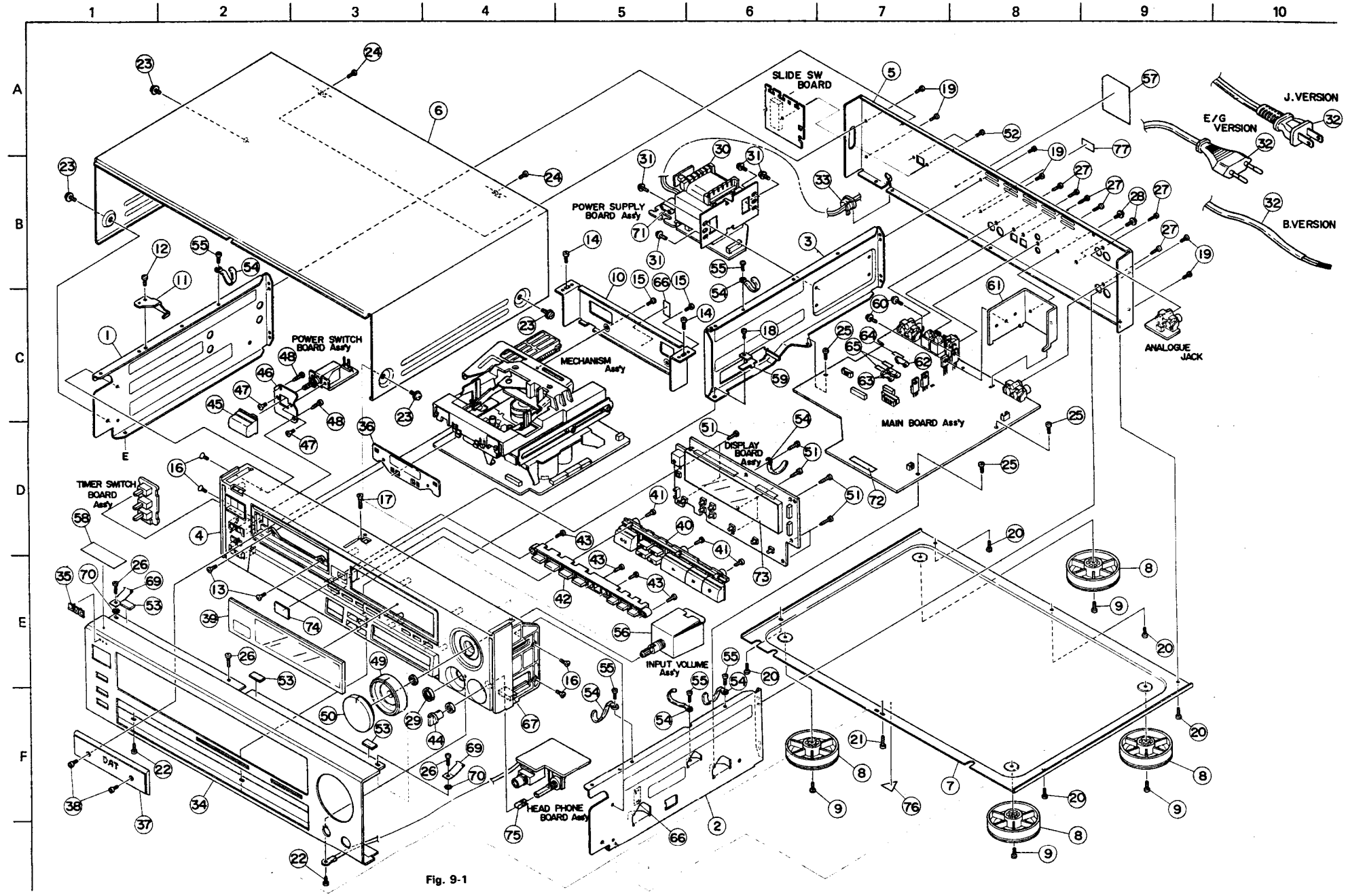


Fig. 9-1

• Enclosure Component Parts List

⚠ Parts are safety assurance parts.
When repalcing those parts, make sure to use the specified one.

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	1	VKL2548-001	CHASSIS(L)		1
	2	VKL2549-001	CHASSIS(R)		1
	3	VKL2550-001	CHASSIS(C)		1
	4	VJC1886-005	FRONT PANEL		1
		VJC1886-006UL	FRONT PANEL	J VERSION	1
	5	VJC2392-001	REAR PANEL		1
		VJC2392-003	REAR PANEL	B/E VERSION	1
	6	VJC1622-002	TOP COVER		1
	7	VJC1547-003	BOTTOM COVER		1
	8	E75088-017	FOOT ASS'Y		4
	9	SBST3008Z	TH.TAP.SCREW		4
	10	VKM3405-001	MECAH BKT		1
	11	VKL6866-002	STOPPER BKT		1
	12	SDST3006Z	SCREW		1
	13	SSST3008M	SCREW	F.PANEL/MECHA	2
	14	SDST3006Z	SCREW	M.BRACKET & CHASS	2
	15	SDSP3006Z	SCREW	MECHA & M.BRACKET	2
	16	SSST3008Z	SCREW	F.PANEL & C.CHASS	4
	17	SSST3010R	SCREW	F.PANEL/C.CHASSIS	1
	18	SDSF3008Z	SCREW	F.PANEL/C.CHASSIS	1
	19	SDST3006M	SCREW	REAR/CHASSIS	6
	20	SXST3006CC	SCREW	CHASSIS & BUTTOM	5
	21	SDST3510M	SCREW	F.PANEL/BOTTOM	1
	22	SDSF3008M	SCREW	F.PANEL/F.PLATE	2
	23	VKZ3004-002	SPECIAL SCREW	TOP & CHASSIS	4
	24	SXST3006CC	SCREW	TOP & REAR	2
	25	GBST3006Z	SCREW	MAIN PWB & CHASSI	3
	26	SXST3014CC	SCREW	F.PLATE/CHASSIS	3
	27	SDSF3008M	SCREW	REAR/JACK	6
	28	DPSP3006CC	SCREW	H.SINK/REAR	2
	29	VKZ4150-001	SPECIAL NUT	HEADPHONE JACK	1
⚠	30	VTP66C9-012B	POWER TRANS	E VERSION	1
⚠		VTP66C9-012BBS	POWER TRANS	B VERSION	1
⚠		VTP66M9-011B	POWER TRANS	G/J VERSION	1
	31	GBST3006CC	SCREW		4
⚠	32	QMP1900-200	POWER CORD	J VERSION	1
⚠		QMP3900-200	POWER CORD	E/G VERSION	1
⚠		QMP9017-008BS	POWER CORD	B VERSION	1
⚠	33	QHS3876-162	S.R.BUSHING		1
⚠		QHS3876-162BS	S.R.BUSHING	B VERSION	1
	34	VJC1887-003	FRONT PLATE		1
	35	E72968-001	JVC MARK		1
	36	VKL6586-002	DOOR BRACKET		1
	37	VJD5276-002	DOOR PLATE		1
	38	BYS3005M	H.S.HEAD BOLTS		2
	39	VJK3503-002	FINDER		1
	40	VXP3369-002	MECHA BUTTON		1
	41	SDSF3010Z	SCREW	F.PANEL/M.BUTTON	3
	42	VXP3370-002	PUSH BUTTON ASS	SUB CODE BUTTON	1
	43	SDSF3010Z	SCREW		4
	44	E74179-001	KNOB	HEADPHON VOLUME	1
	45	E75535-003	POWER BUTTON		1
	46	VKL6867-001	POWER SW BKT		1
	47	SSSP3006Z	SCREW	POWER SW/BRACKET	2
	48	SDSF3008Z	SCREW	BRACKET/F.PANEL	2

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	49	VXL3013-002	INPUT VOL (L)		1
	50	VXL3014-002	INPUT VOL (R)		1
	51	SDSF3008Z	SCREW	FL PWB/F.PANEL	8
	52	SDSP3006M	SCREW	B/E VERSION	2
	53	VYSR104-009	SPACER	F.PLATE	3
	54	VKZ4001-110	WIRE CLAMP		5
		VKZ4001-110	WIRE CLAMP		1
	55	SDST3006Z	SCREW		5
	56	VMA4441-001	SHEELD CASE		1
	57	VYN2259-002LA	NAME PLATE	B VERSION	1
		VYN2259-003LA	NAME PLATE	E VERSION	1
		VYN2259-004LA	NAME PLATE	G VERSION	1
		VYN2259-005LA	NAME PLATE	J VERSION	1
	58	VND4893-002	C LABEL		1
	59	VKL6981-001	EARTH BKT		1
	60	DPSP3010Z	SCREW		2
⚠	61	VMH3013-001	HEAT SINK		1
⚠	62	QMF51A2-1R25	FUSE	F11 E/G VERSION	1
⚠		QMF51E2-1R25BS	FUSE	F11 B VERSION	1
⚠		QMF51U1-1R6	FUSE	F11 J VERSION	1
⚠	63	QMF51A2-1R0	FUSE	F12 E/G VERSION	1
⚠		QMF51A2-1R0	FUSE	F13 E/G VERSION	1
⚠		QMF51E2-1R0BS	FUSE	F12 B VERSION	1
⚠		QMF51E2-1R0BS	FUSE	F13 B VERSION	1
⚠		QMF51U1-1R25	FUSE	F12 J VERSION	1
⚠		QMF51U1-1R25	FUSE	F13 J VERSION	1
	64	VND4003-007	FUSE LABEL	FOR F11 J VERSION	1
		VND4003-030	FUSE LABEL	FOR F11 B/E/G VER	1
	65	VND4003-015	FUSE LABEL	FOR F12 J VERSION	1
		VND4003-015	FUSE LABEL	FOR F13 J VERSION	1
		VND4003-037	FUSE LABEL	FOR F12 B/E/G VER	1
		VND4003-037	FUSE LABEL	FOR F13 B/E/G VER	1
	66	VYSA1R6-042	SPACER		1
		VYSA1R6-042	SPACER	FOR WIRE	1
	67	VYSR106-021	SPACER		1
	69	VYH7425-001	EARTH SPRING		2
	70	WBS3000	WASHER		2
⚠	71	QMF51A2-R50	FUSE	F01 E VERSION	1
⚠		QMF51E2-R50BS	FUSE	F01 B VERSION	1
	72	VND4068-003	LABEL	J VERSION	1
	73	VJD4615-028	FILTER		1
	74	VJD5029-003	RC FILTER		1
	75	VYSA1R2-033	SPACER	H.P VOLUME KNOB	1
	76	VND4113-001	G.CAUTION LABEL	B/J VERSION	1
	77	QZL1007-001	BEAB LABEL	B VERSION	1
		VND4037-002	F MARK	G VERSION	1

10 Exploded View of Mechanism Assembly

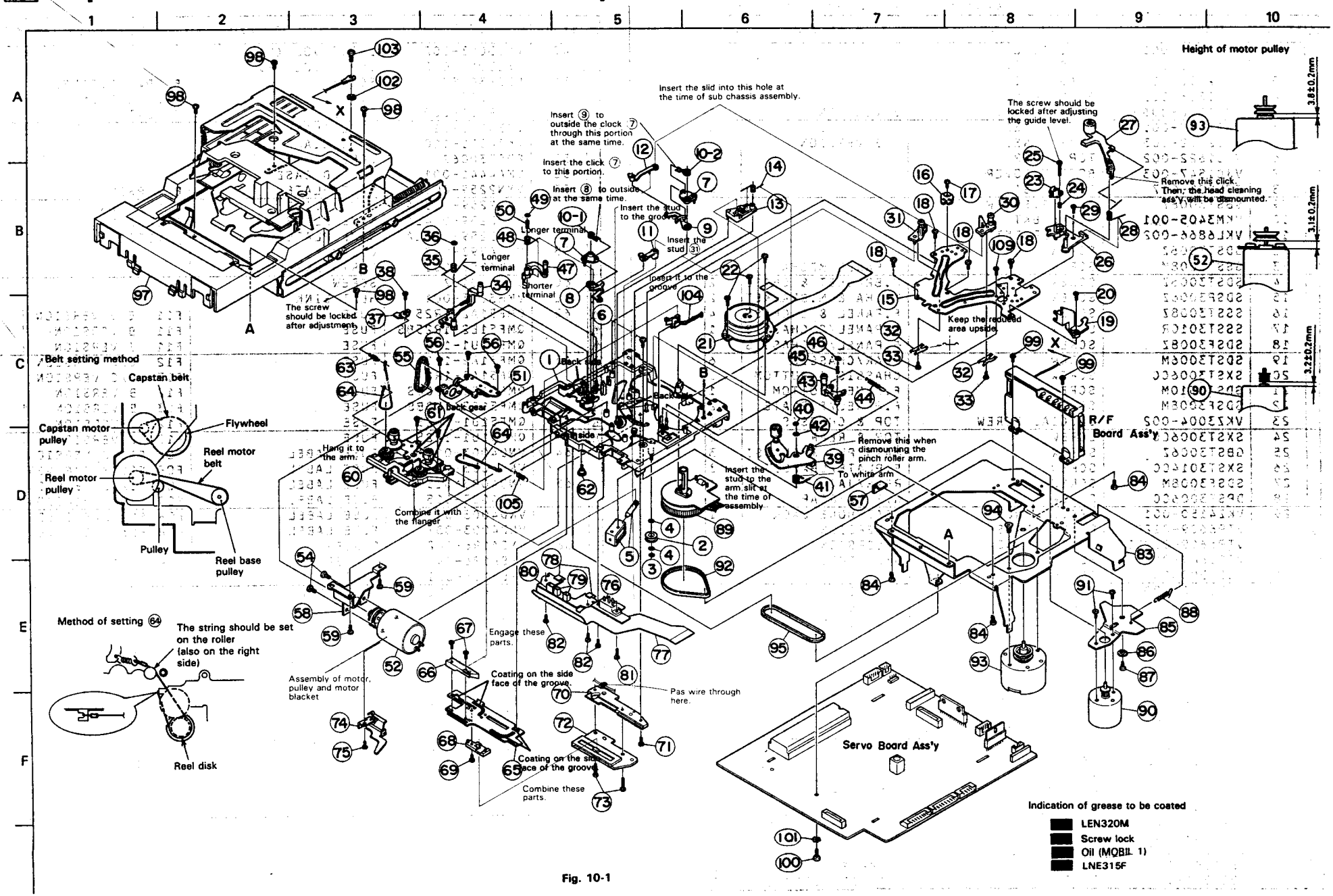

Height of motor pulley
3.8±0.2mm
3.1±0.2mm
3.2±0.2mm
Insert the slid into this hole at the time of sub chassis assembly.
Insert ⑨ to outside the clock ⑦ through this portion at the same time.
Insert the click ⑦ to this portion.
Insert ⑧ to outside at the same time.
Insert the stud to the groove
Insert the stud 31
Insert it to the groove
Longer terminal
Shorter terminal
The screw should be locked after adjustment.
The screw should be locked after adjusting the guide level.
Remove this click. Then, the head cleaning ass'y will be dismounted.
Keep the reduced area upside.
R/F Board Ass'y
Remove this when dismounting the pinch roller arm.
To white arm
Insert the stud to the arm slit at the time of assembly
Back side
Front side
Back gear
Hang it to the arm.
Combine it with the flanger
Belt setting method
Capstan belt
Capstan motor pulley
Flywheel
Reel motor belt
Reel motor pulley
Pulley
Reel base pulley
Method of setting ⑭
The string should be set on the roller (also on the right side)
Reel disk
Assembly of motor, pulley and motor blacket
Engage these parts.
Coating on the side face of the groove.
Pas wire through here.
Coating on the side face of the groove.
Combine these parts.
Servo Board Ass'y
Indication of grease to be coated
LEN320M
Screw lock
Oil (MOBIL 1)
LNE315F

Fig. 10-1

• **Mechanism Component Parts List**

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	1	VKZ1113-00A	CHAS.BASE ASS'Y		1
	2	VKR4627-002	PULLEY ASS'Y		1
	3	WDL122525-4	SLIT WASHER	PULLEY	1
	4	WFM173013	WASHER	PULLEY	2
	5	VGP1501-001	DC SOLENOID		1
	6	SPSK2025M	MINI SCREW	SOLENOID	1
	7	VKS5160-00A	LOADIN ARM ASSY		2
	8	VKS5152-006	LOADING ARM L2		1
	9	VKS5153-006	LOADING ARM R2		1
	10-1	VKW4910-002	TORSION SPRING	LOADING	1
	10-2	VKW4831-001	TORSION SPRING	LOADING	1
	11	VKS5070-004	LOADING ARM L3		1
	12	VKS5071-001	LOADING ARM R3		1
	13	VKS5161-00B	PRP ARM ASS'Y		1
	14	VKW3006-194	TORSION SPRING	PINCH.PRESSURE	1
	15	VKL2373-008	SUB CHASSIS		1
	16	VKS5065-001	CATCHER		1
	17	VKZ4539-001	MINI TAP SCREW	CATCHER	1
	18	VKZ4539-001	MINI TAP SCREW	SUB CHASSIS	5
	19	VKS3453-003	LID OPENER(T)		1
	20	VKZ4539-004	MINI TAP SCREW	LID OPENER	1
	21	SDA2305	DRUM ASS'Y		1
	22	VKZ4539-014	MINI TAP SCREW	DRUM	3
	23	VKS5166-003	TAPE GUIDE		1
	24	VKW3001-247	COMP.SPRING	TAPE GUIDE	1
	25	VKZ4539-006	MINI TAP SCREW	TAPE GUIDE	1
	26	VKS3370-001	CLEANER BASE		1
	27	VKS5164-00D	CLEANER UNIT		1
	28	VKW4030-003	TORSION SPRING	CLEANER UNIT	1
	29	VKZ4539-001	MINI TAP SCREW	CLEANER BASE	1
	30	VKZ3144-00B	P.BASE(T) UNIT		1
	31	VKZ3147-00B	P.BASE(S) UNIT		1
	32	VKY4536-004	P.BASE SPRING	POLE BASE	2
	33	VKZ4539-003	MINI TAP SCREW	POLE BASE UNIT	2
	34	VKZ4451-00D	TORSION ARM ASY		1
	35	VKW4030-006	TORSION SPRING	TENSION ARM	1
	36	WFM123525	WASHER	TENSION ARM	1
	37	VKL6561-002	TENSION ADJUSTE		1
	38	VKZ4539-003	MINI TAP SCREW	TENSION ADJUSTER	1
	39	VKP3116-00A	P.R.ARM ASS'Y		1
	40	WDL122525-4	SLIT WASHER	P.ROLLER ARM ASS'	1
	41	VKW4906-001	TORSION SPRING	P.ROLLER PRESSER	1
	42	WFM173013	WASHER	P.ROLLER	1
	43	VKZ4453-00D	G.R.LEVER ASS'Y		1
	44	VKW4815-001	TENSION SPRING	G.ROLLER LEVER	1
	45	VKW3001-257	COMP.SPRING	G.ROLLER LEVER	1
	46	WFM123525	WASHER	G.ROLLER LEVER	1
	47	VKZ4456-00C	G.P.LEVER ASS'Y		1
	48	VKW4030-002	TORSION SPRING	GUIDE POST LEVER	1
	49	WFM123525	WASHER	GUIDE POST LEVER	1
	50	VKW3001-257	COMP.SPRING	GUIDE POST LEVER	1
	51	VKM3339-00A	ACTUATOR UNIT		1
	52	MDH2B10-SA1	D.C. MOTOR ASS'Y	INCLUDING NO. 54,58	1
	54	SDSP3003Z	SCREW	ACTUATOR MOTOR	2
	55	VKB3000-141	BELT	ACTUATOR	1

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	56	VKZ4539-001	MINI TAP SCREW	ACTUATOR UNIT	3
	57	VYSA1R3-032	SPACER		1
	58	VKL6858-001	MOTOR BRACKET	ACTUATOR MOTOR	1
	59	VKZ4539-001	MINI TAP SCREW	ACTUATOR M.BRACKE	2
	60	VKL2544-00B	REEL UNIT		1
	61	VKZ4539-001	MINI TAP SCREW	REEL UNIT	2
	62	VKZ4357-001	SCREW		1
	63	VKW4837-001	TENSION SPRING		1
	64	VKZ4527-00B	STRING ASS'Y		2
	65	VKL3991-005	CAM BAR		1
	66	VKS5102-004	RACK		1
	67	SPSH1220M	MINI SCREW	RACK GEAR	2
	68	VKS5103-003	SWITCH GUIDE		1
	69	SPSH1220M	MINI SCREW	SWICHT GUIDE	1
	70	VKS5087-002	SPACER		1
	71	VKZ4539-001	MINI TAP SCREW		1
	72	VSUS002-002	CAM SW. ASS'Y		1
	73	VKZ4539-006	MINI TAP SCREW	CAM SWICHT ASS'Y	2
	74	VKL6389-00A	ELVT.BKT ASS'Y		1
	75	VKZ4539-001	MINI TAP SCREW	ELEVATOR ASS'Y	1
	76	VSH3102-001	SWITCH	REC SAFTEY	1
	77	VMW2710-001	PWB(HOLE IC)	FOR SWICHT	1
	78	DN6851D	HALL IC		2
	79	VMC0085-002	CONNECTOR		2
	80	VMC0085-003	CONNECTOR		1
	81	VKZ4539-004	MINI TAP SCREW	SWITCH BOARD	1
	82	VKZ4539-001	MINI TAP SCREW	SWITCH BOARD	3
	83	VKL1328-001	P.C.B BRACKET		1
	84	VKZ4539-001	MINI TAP SCREW	BOARD BRACKET	4
	85	VKL6907-002	TENSION MOT BKT		1
	86	VKH3013-033	FLANGE COLLAR		1
	87	VKZ4539-011	MINI TAP SCREW	TENSION BRACKET	1
	88	VKW4010-018	TENSION SPRING	TENSION BRACKET	1
	89	M34118A	FLYWHEEL ASY		1
	90	MDN-4RA2MYBS-SA1	D.C. MOTOR ASS'Y		1
	91	SPSH2020M	MINI SCREW	CAPSTAN MOTOR	2
	92	VKB3002-004	BELT		1
	93	MMN-6F2RA8Z-SA1	DC MOTOR ASS'Y		1
	94	SSSP2604Z	SCREW	TEEL MOTOR	2
	95	VKB3000-139	BELT	FOR REEL	1
	97	VKL1329-00B	CASECON ASS'Y	CASSETTE COMPARTM	1
	98	VKZ4539-011	MINI TAP SCREW	CASECON	4
	99	VKZ4539-001	MINI TAP SCREW		2
	100	SDST2606Z	SCREW	SERVO BOARD ASS'Y	1
	101	WBS2600N	WASHER	SERVO BOARD ASS'Y	1
	102	WBS3000N	WASHER	EARTH WIR	1
	103	SDST3006Z	SCREW	EARTH WIR	1
	104	VKS5320-001	TENSION LEVER		1
	105	VKW4010-017	TENSION SPRING		1

11 Packing

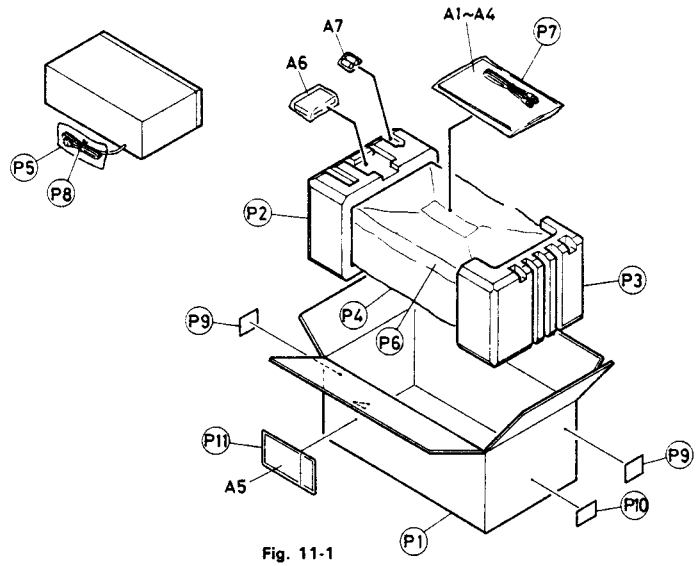


Fig. 11-1

■ **Packing Parts List**

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	A 1	VMP0039-00D	PIN CORD		1
	A 2	EWP805-001E	REMOTE WIRE		1
	A 3	VNN2259-211	INST BOOK	B/E VERSION	1
		VNN2259-451	INST BOOK	E/G VERSION	1
		VNN2259-611	INST BOOK	J VERSION	1
	A 4	BT-20044F	SAFETY INST.	J VERSION	1
		BT-20060	WARRANTY CARD	B VERSION	1
		BT-20066A	WARRANTY CARD	B VERSION	1
		BT-20117	WARRANTY CARD	G VERSION	1
		E43486-340A	INST.SHEET	B VERSION	1
	A 5	BT-20047E	WARRANTY CARD	J VERSION	1
		BT-20108A	WARRANTY CARD	J VERSION	1
	A 6	RM-RD505U	REMOCON ASS'Y		1
	A 7	UM4NJ-2P	BATTERY		2
	P 1	VPC2259-002	CARTON		1
	P 2	VPH2386-001	CUSHION(LEFT)		1
	P 3	VPH2387-002	CUSHION(RIGHT)		1
	P 4	E34033-015	ENVELOPE	FOR UNIT	1
	P 5	QPGA010-03003	POLY.BAG	FOR POWER CORD	1
	P 6	E73660-008	SHEET	FOR UNIT	1
	P 7	VPE3005-007	POLY BAG	FOR INST.	1
	P 8	Q04141H	WIRE CLAMP	FOR POWER CORD	1
	P 9	VND3044-002	SERIAL TICKET	J VERSION	2
		VND3044-003	SIRIAL TICKET	E VERSION	1
		VND3044-004	SIRIAL TICKET	B VERSION	1
		VND3044-005	SIRIAL TICKET	G VERSION	1
	P10	VND3065-015	UPC CODE LABEL	J VERSION	1
		VND3069-013	EAN CODE LABEL	B/E/G VERSION	1
	P11	E66416-003	ENVELOPE	J VERSION	1